

**Competition in the Canned Peach Industry.** By John Dunmore, Jason Bernstein, Linda Calvin, Todd Morath, and Thomas Vollrath, Market and Trade Economics Division, Economic Research Service, U.S. Department of Agriculture. Staff Paper No. 9901.

### **Abstract**

The European Union (EU) Common Market Organization (CMO) for Fruits, which provides subsidies to Greek and other EU peach growers and processors has greatly altered the global competitive playing field for canned peaches. Greece now holds a 60 percent share of canned peach exports, up from just 11 percent in the early 1970's. The United States, on the other hand, has moved from a 23 percent share of the export market in the early 1970s, to a 4 percent share today, and, in most years since the mid-1980s, has been a net importer of canned peaches. The purpose of this study was to identify and analyze the factors underlying this reversal of competitive positions between the EU/Greece and the United States, and to assess the relative role of government support in the reversal.

**Keywords:** canned peaches, European Union, Greece, United States, producer subsidies, imports, exports

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## **I. OVERVIEW OF THE GLOBAL CANNED PEACH MARKET**

There has been significant change in the structure of canned peach production and trade over the past 25 years. Information in Moulton (1995) provides a good perspective on the nature of the change in the global canned peach market (table 1). Globally, the production (pack) of canned peaches and levels of trade were relatively stable during the 10-year period from 1970-73 to 1980-83. The total pack actually declined, about 10 percent, and the level of trade based on the 1970-73 average compared to the 1980-83 average increased somewhat. The decade of the 1980s (1980-83 to 1990-93) saw a dramatic increase in the global production and consumption of canned peaches, an increase of almost one-third over the 1980-83 to 1990-93 period.

Trade in canned peaches has also increased dramatically over the 1980s and into the 1990s. Global trade (exports) expanded by 60 percent over the 1980-83 to 1990-93 period. In addition, trade became more important in the balancing of global production and consumption. In the 1970-73 period, exports accounted for just over 30 percent of production/consumption. By the 1990-93 period, trade (exports) represented over 45 percent of production/consumption.

While global production/consumption of canned peaches was expanding and trade was becoming more important, U.S. canned peach production and exports declined. The U.S. share of the global pack fell from more than 60 percent in the early 1970s to 36 percent in the early 1990s. Other countries, particularly Chile, experienced strong growth in canned peach production and exports, but most of the growth in production and trade took place in member states of the European Union (EU), and particularly in Greece.

### **Purpose of the Study**

The EU Common Market Organization (CMO) for Fruits, which provides subsidies to Greek and other EU peach growers and processors has greatly altered the global trade patterns for canned peaches. Greece now holds a 60-percent share of canned peach exports, up from just 11 percent in the early 1970s. The United States, on the other hand, has moved from a 23-percent share of the export market in the early 1970s, to a 4-percent share today, and, in most years since the mid-1980s, has been a net importer of canned peaches. The purpose of this study was to identify and analyze the factors underlying this reversal of trade patterns between the EU/Greece and the United States, and to assess the relative role of government support/intervention in the reversal.

### **Competition on the International Market**

Information for the 1992-96 period provides a more recent snapshot of competition in the global canned peach market. Based on detailed United Nations (UN) bilateral trade records, there were 50 countries supplying canned peaches to the various foreign markets in 1994. Greece is by far

the largest global exporter, providing 57 percent of world import demand between 1992 and 1996. Secondary exporters are South Africa, Spain, China, Chile, the United States, Italy, and Australia. Appendix III contains a detailed review of the current situation in the canned peach industry of several of these secondary exporters. Collectively, these secondary exporters supplied 32 percent of the world import demand in 1994 (chart 1).

A review of canned peach import statistics for the same period indicates that many of the countries exporting canned peaches were also importers, including many of the "secondary"

**Table 1 -- Changes in the Global Canned Peach Industry**

Average annual	U.S.	Greece	Chile	Others	Total
<i>-----1,000 cases 24/2 - ½ Equivalent-----</i>					
<b>Production</b>					
1970-73	25,958	2,869	478	13,305	42,610
1980-83	19,557	6,108	606	11,700	37,971
1990-93	18,197	15,050	1,512	15,347	50,106
<b>Change in production</b>					
1970-73 to 1980-83	-6,401	3,239	128	-1,605	-4,639
1980-83 to 1990-93	-1,360	8,942	906	3,647	12,135
<b>Exports</b>					
1970-73	2,955	1,431	130	8,518	13,034
1980-83	1,843	5,195	226	6,957	14,221
1990-93	943	14,309	1,042	6,471	22,765
<b>Change in exports</b>					
1970-73 to 1980-83	-1,112	3,764	96	-1,561	1,187
1980-83 to 1990-93	-890	9,114	816	-496	8,544

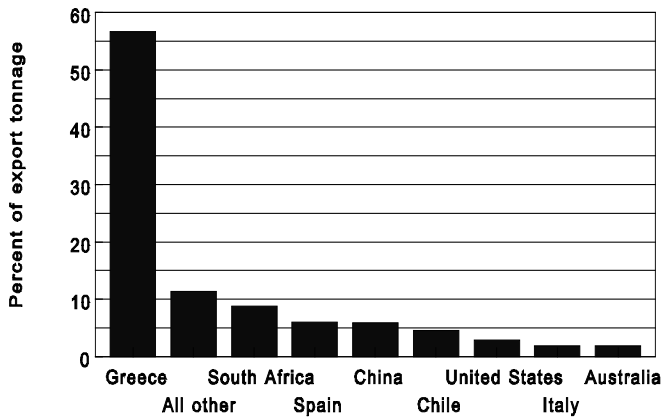
**Notes:** "Others" includes Argentina, Australia, South Africa, Italy, and Spain.

"Total" includes all the major producers and exporters and excludes minor producers and exporters such as Japan and France

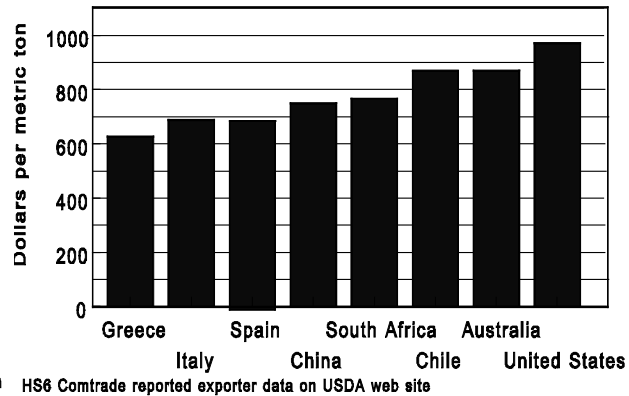
Data are converted from metric tons using the USDA/FAS convention of 48.9 cases per metric ton.

**Source:** Moulton, Kirby. "Competition and Trade in Canned Peaches: The Situation Relative to Chile," Working Paper No. 737. Department of Agricultural and Resource Economics, U.C. Berkeley, 1995.

**Chart 1: World suppliers of canned peaches--market shares in 1994**



**Chart 2: Export-unit price of canned peaches from principal exports in 1994**



exporters mentioned above. For example, prior to 1984, U.S. imports of canned peaches were negligible. U.S. imports increased dramatically after 1984, with the United States becoming a net importer of canned peaches in many of the years between 1984 and 1997.

While detailed trade statistics from the UN are not available for canned peaches for years earlier than 1990, based on U.S. patterns of import and export of canned peaches, inter-industry trade (countries both importing and exporting) is an increasing component of global trade in canned peaches. Patterns of trade for products where inter-industry trade (IIT) is important cannot be easily rationalized on the basis of comparative advantage, which predicts that countries will import and export goods based on some level of resource endowment and comparative production efficiencies. Understanding patterns of trade in goods characterized by IIT is more often approached from a product differentiation or similarity-of-preferences standpoint. Trade in goods such as canned peaches is often characterized more by differences in quality or other features of importance to consumers (for example packaging size), than by differences in production efficiencies.

Based on a comparison of export unit values expressed in U.S. dollars (\$U.S.) per metric ton, Greece, Italy, and Spain--the three major EU exporters--are the low-priced suppliers (chart 2). The United States is, by contrast, the highest-priced supplier among the eight largest exporting countries. However, there are problems and major cautions associated with the use of export unit values for comparisons across countries. A low export unit value does not necessarily equate to a low-cost producer. Some understanding of the role that governments play in supporting the peach sector is required. Lynch and Moulton (1995) studied processing costs for canned peaches for the major exporters for the 1994 and 1995 processing (pack) years. Their study, which considered government policies and program where applicable, found Greece, Chile, and South Africa to be the low-cost processors among the major canned peach exporters. Australia, the

United States, and Italy were in the mid-range, with Argentina and Spain identified as higher-cost processors. In addition to processor costs, changes in the local currency/\$U.S. exchange rates from one period to another can cause significant adjustments in the reported \$U.S. denominated export unit value. The export price differential between countries (for example, between U.S. and Greek canned peach export unit values) may also be explained, in part, by product specialization within the canned peach industry.<sup>1</sup> Export unit values are averages for all types of canned peach exports; actual export prices can vary by quality of the export (choice or fancy, for example) and by size of container. Greece, for example, holds a larger market share in the United States for canned peaches in containers equal-to-or-exceeding 1.4 kilograms than they do for canned peaches in smaller containers. This could suggest that the Greeks specialize in supplying relatively lower-priced large containers which are targeted to the more price-responsive institutional buyer.

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<sup>1</sup>Unfortunately, the most detailed UN bilateral trade record available, based upon *Harmonized System* (HS) 6-digit data, is not sufficiently disaggregated to analyze trade among exporters of large and small containers. The U.S. Census does distinguish between trade of canned peaches in containers less-than and greater-than-or-equal-to 1.4 kilograms on the U.S. import side, but not on the export side.

## **II.**

## **THE EU CANNED PEACH INDUSTRY**

### **The Common Market Organization for Fruits and Vegetables**

The European Union has traditionally supported or subsidized the production of many agricultural commodities. For fruits and vegetables, the EU has instituted a system of regulations intended to support their production and commercialization, called a Common Market Organization (CMO). Two different CMOs for fruits and vegetable currently exist, one for fresh and one for processed varieties. Since fresh peaches are an input into the production of canned peaches, it is important to consider the regulations under both CMOs to understand how the EU supports the production of canned peaches.

On October 28, 1996, the European Commission approved significant reforms to CMOs for fresh and processed fruits and vegetables. Since this paper analyzes the effects of the CMO on peach production before 1996, discussion of these reforms have been reserved until the end of this section.

### **Regulations under the CMO for fresh fruits and vegetables**

The fresh fruit and vegetable CMO created a withdrawal program to maintain market prices in times of overproduction. Peach growers (as well as many other fruit and vegetable growers) can decide not to deliver, or to "withdrawal," their produce from the market. Under certain conditions of quality, conditioning, and period, peach growers will receive compensation from the Commission for products submitted for withdrawal. Before the 1996 reform, compensation was paid to peach growers in the form of a withdrawal price for peaches that were approved for withdrawal. The withdrawal price, in units of ecus/100kg, was determined by the Commission before the beginning of each year's commercialization campaign. The amount of peaches accepted for withdrawal was limited by a guaranteed threshold. If the threshold was exceeded, the withdrawal price for the following season was lowered by a specified amount. Data on the actual amount of peaches submitted for withdrawal show that this threshold was never in danger of being surpassed.

Management of withdrawn peaches is increasingly handled by producer organizations (POs), established by the CMO to enhance the bargaining power of usually small peach growers against larger peach buyers. Before the 1996 reform, processors could buy fresh peaches either from the producer organizations (POs) or individual producers. The POs ensure that peaches submitted for withdrawal meet quality specifications, initially finance the withdrawals (through an intervention fund) and that fruit is disposed of properly. Disposed product can be freely distributed to charity institutions, hospitals, or schools, or serve as livestock food or for distillation. Most withdrawn peaches, however, are simply thrown away.

## **Regulations under the CMO for processed fruits and vegetables and the Canned Fruit Accord**

Canned peach processors buy fresh peaches as an input into their final product. It is usually assumed that a few, highly concentrated canned peach processors (buyers) have significantly more bargaining power over the many peach growers (sellers). This imbalance could result in peach processors using their monopsonistic power to buy peaches at a lower price than under a more competitive market. To ensure that peach growers are receiving an adequate revenue for their product, the EU has mandated that peach processors pay a Minimum Grower Price (MGP) for fresh peaches. Like the withdrawal price, the MGP is in units of ecus (euros)/100kg and is determined by the Commission annually before each commercialization campaign.

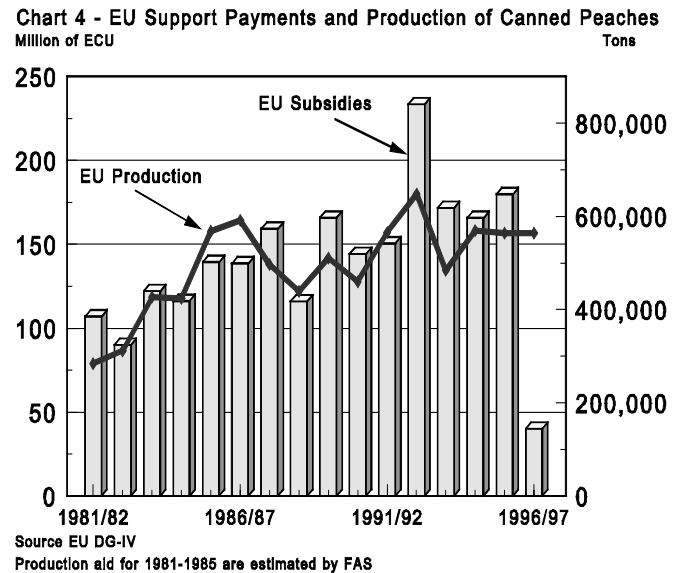
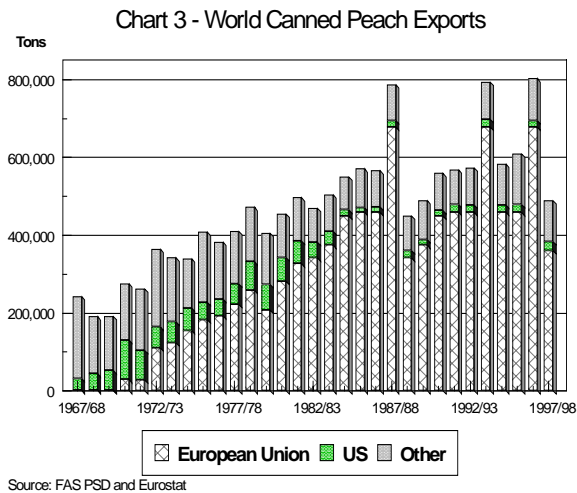
Processing or Production Aid (PA) is provided as compensation to the peach processor for having to pay the higher MGP. The amount of processing aid is limited by a bilateral agreement between the EU and the United States, called the Canned Fruit Accord or Agreement (CFA). The CFA mandates that the amount of processing aid shall be no greater than the difference between the MGP and a calculated world price. The world price is a trade-weighted average of prices of non-EU exporters, agreed upon by the EU and United States. The MGP, as stated earlier, is determined entirely by the EU. However, the production aid is usually calculated in units of ecus/100 kg of **processed** product, as opposed to the world price and the MGP which is calculated in terms of **fresh** product. Therefore, in order to determine if production aid provided by the EU is in compliance with the CFA, production aid must be converted to its fresh equivalent.

## **EU Trade in Canned Peaches**

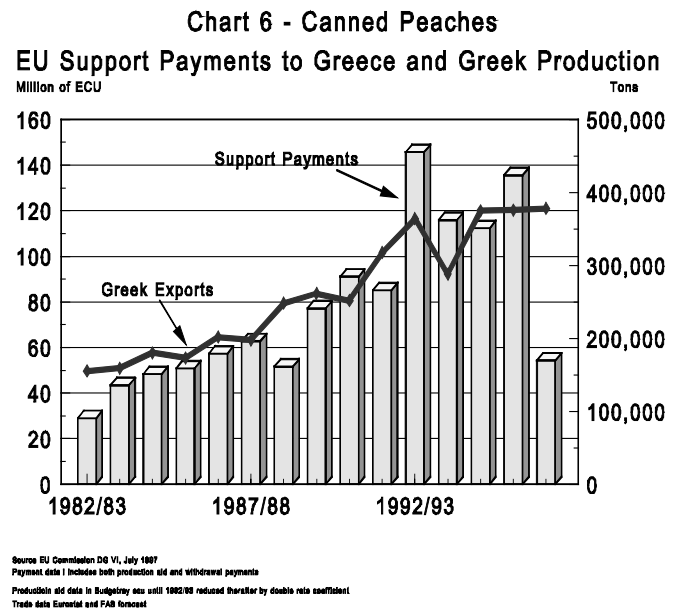
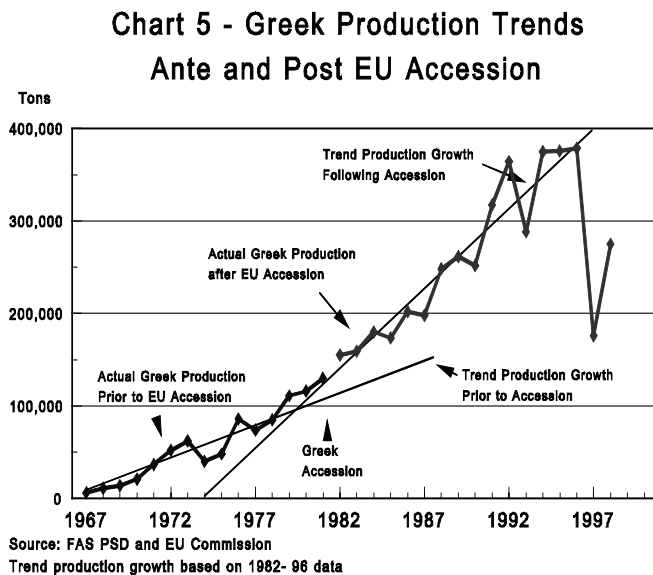
EU subsidies covered under the EU CMOs were intended to support domestic production and commercialization of canned peaches. However, these subsidies may have supported EU exports of canned peaches as well. Between 1967/68 and 1982/83, the EU has turned from being a net importer of canned peaches to being the world's largest exporter of canned peaches (chart 3). Increases in world canned peach exports between 1982/83 and the 1992/93 have come entirely from the EU, while market share from countries such as the United States has steadily declined. Most of this increase in exports has come from large increases in canned peach production in the EU. Between 1980 and 1995, the EU more than doubled its production of canned peaches, increasing the EU's share of world production from 13 to 52 percent. EU subsidies appear to have played a significant role in this increase, with the value of the EU support program reaching a high of over 225 million ecu (\$300 million) in 1992 (chart 4).

While France, Italy, and Spain, are significant producers of canned peaches, the majority of EU production and exports comes from Greece. Greece accounted for 82 percent of EU exports in 1995, and over 70 percent of total world canned peach exports in 1996. In less than 30 years, the Greek canned peach industry grew from a negligible supplier, to the world's largest producer and exporter (chart 5). EU support payments to Greek producers (both processor aid and





withdrawal payments) grew from 29 million ecu in 1982 to over 137 million ecu in 1995 (chart 6). Within this 13-year period, processor aid doubled, and withdrawal payments increased over 800 percent. Greece has also accounted for the majority of intra-EU trade. The majority of imports from EU members has come from Greece while imports from non-EU member countries, such as the United States and South Africa, has slowly declined (chart 7).



## Theory of Input Markets

Since the EU subsidies affect the available supply of fresh peaches used as inputs by processors, input market theory can be used to explain how domestic subsidies can affect production and export market share of the final product, canned peaches. This type of analysis is well represented in economic literature and is clearly illustrated in Houck (1992). There are, of course, other inputs such as sugar and cans, but, for the purpose of this illustration, the cost of these inputs is assumed not to change. Figure 1 illustrates how the subsidy stimulates added production of canned peaches, moving the country from a net importer to a net exporter position.

Chart 7 - EU Imports of Canned Peaches  
1976 to 1996

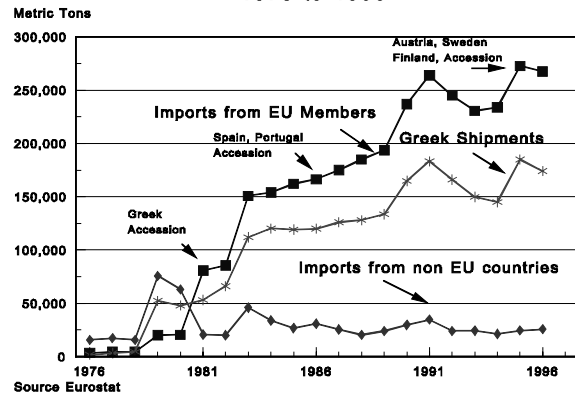
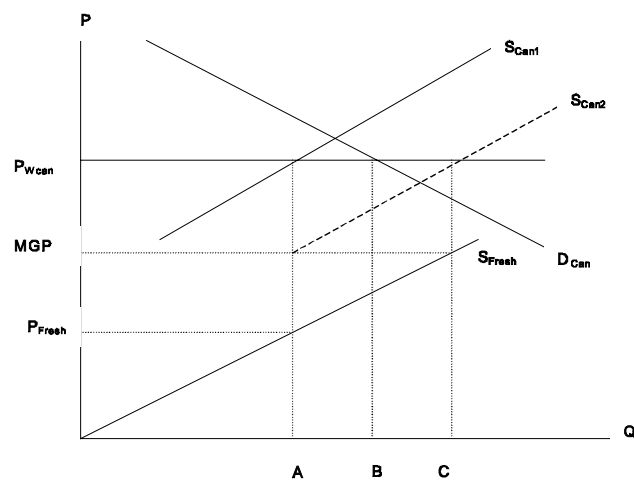


Figure 1 Impact of an Input Subsidy on Product Markets



In the diagram,  $S_{\text{Fresh}}$  represents the supply curve for **fresh** peaches. Peach growers who produce fresh peaches for canned production originally received a price of  $P_{\text{Fresh}}$  for their product. The world price for **canned** peaches is at  $P_{\text{Wcan}}$ . For the time being, assume that each ton of fresh peaches produces an equivalent amount of canned peaches. At the world price  $P_{\text{Wcan}}$ , this country produces quantity A of canned peaches and is a net importer--imports being the quantity

represented by the distance between point A on the canned peach supply curve,  $S_{Can1}$ , and point B on the demand curve,  $D_{Can}$ . Now let's say the government imposes a price ceiling, or Minimum Grower Price, for peaches at MGP. This will encourage a higher production of fresh peaches at point C. If canned peach processors are subsidized to accept these additional peaches by the difference between  $P_{Fresh}$  and MGP, this will shift the supply curve for canned peaches to the right from  $S_{Can1}$  to  $S_{Can2}$ . At this point, the country is now a net exporter of canned peaches, able to produce quantity C at the world price.

This theoretical model is, of course, not a full or completely accurate depiction of the Common Market Organizations or CMOs for peaches within the EU. It does not include a depiction of the EU withdrawal system where peach growers are able to receive payments for disposing of fresh peaches. Additionally, it assumes that the peaches produced have only one use--as an input for canned peaches and do not have other uses. However, even when accounting for these constraints, the theory does explain how domestic input subsidies could affect production of the final product on a country-wide level.

### **Calculating Producer Subsidy Equivalents (PSEs ) for EU Canning Peaches**

The theory of input markets sets the stage for explaining how subsidies can affect production and prices. In order to empirically examine the theory, an attempt is made to measure a Producer Subsidy Equivalent or PSE for peaches. PSEs have traditionally been a valuable measure for studying the extent of government support in agricultural markets. PSEs attempt to summarize the effects of a variety of government programs in a single number. Such numbers can then be used to compare levels of support among different countries. See Appendix I for a more detailed discussion of the Producer Subsidy Equivalent as a measure of government support.

For this analysis, two PSEs were calculated, one measuring the level of support for canning peach producers (growers) and one measuring support for canned peach processors. Government support programs for EU peach producers and processors and how they were represented in the PSE are discussed below (see Appendix I for detailed sources and methods for the EU PSE calculation).

### **EU support programs for canning peach producers (growers)**

#### **1. Market Price Support (MPS<sub>G</sub>)**

##### *Production Aid*

There are two types of support programs which fall under this category, Production Aid and Withdrawal. Production Aid guarantees the grower a Minimum Grower Price (MGP) for fresh peaches that are used for processing. Without government intervention, it is assumed that producers would receive a price (an open market price [OMP] )for peaches which would be below the MGP. Therefore, the level of support for this program would be represented by:

$$MPS_{PA} = (MGP - OMP) * \text{Quantity of peaches (fresh) for processing}$$

In the PSE calculation, the  $MPS_{PA}$  is set equal to the processing aid--an EU budget outlay.

#### *Withdrawal or CWC Program*

The Withdrawal or CWC program for peaches pays producers a Withdrawal Subsidy to dispose of "excess" peaches from the market. In some years, Greek peach producers withdrew over 60 percent of production from the market. While this could be represented by the following formula in the PSE calculation,

$$MPS_w = (\text{Withdrawal Subsidy per ton}) * (\text{Quantity of peaches withdrawn from the market}),$$

it is easier and simpler to, once again, use the EU budget outlay for this program.

$$MPS_G = MPS_{PA} + MPS_w$$

## **2. Marketing Assistance (MA)**

There are two types of support programs that fall under this category, a Promotion Measures program and a Grubbing-Up or Tree-Pull program.

The Promotion Measures program is a general, non-commodity specific program to promote products which come under EEC Regulation No 1035/72, which includes peaches. Such promotion measures include aid to encourage establishment of producer groups and schemes to improve the marketing network, quality, and presentation of produce. Grubbing-Up is a relatively new program, started in 1996 to limit fresh peach production. A 5,000 ECU payment is made to growers for every hectare of land removed from peach production. Since there was no program in effect during the 1989 to 1995 period, the grubbing-up program was not included in the EU PSE calculations.

## **3. Infrastructure Support (IS<sub>G</sub>)**

Infrastructure support includes general non-commodity specific EU expenditures on agriculture. Such expenditures include research, pest and disease control, extension and advisory services, and infrastructure services.

## **4. Input Assistance (IA<sub>G</sub>)**

Input assistance programs are non-commodity specific programs provided by the EU and reported to the World Trade Organization (WTO) under the EU Aggregate Measures of Support (AMS).

They basically include subsidies for insurance, fertilizer, and interest on loans. The governments of EU-member countries such as Greece also provide financial aid to their agricultural sectors in the form of interest rates on short, medium, and long-term loans. This form of national government assistance would tend to raise the overall level of support to producers from that provided by the EU alone. However, the lack of data on individual government programs prevents their inclusion into the actual PSE calculation, thus understating the actual level of producer support provided through input assistance.

## **EU support programs for canned peach processors**

### **1. Market Price Support (MPS<sub>P</sub>)**

MPS<sub>P</sub> programs include Processing Aid and a Sugar Refund Program. The canned peach processor receives processing aid (PA) intended to offset the higher MGP paid to the peach grower, which is essentially a tax to the processor. The PA is the difference between the MGP and the assumed open-market price (OMP). This can be represented by an EU budget outlay for processing aid on the basis of the quantity of peaches sold to canners. Note that the net effect of the PA subsidy is zero because it exactly compensates the processor for the higher MGP paid to growers.

The Sugar Refund Program entitles the processor to an export restitution for sugar (the difference between the world price and the community price) if the sugar is used for canned peaches that are exported outside the EU. Many analysts believe that most processors buy sugar in the world markets and, therefore, do not take advantage of this restitution. For this reason, the Sugar Refund Program is not included in the processor PSE calculation.

### **2. Price Intervention (PI)**

The EU imposes a 24-percent tariff on imports of canned peaches which protects domestic producers by increasing the domestic price. Price intervention is captured in the PSE according to the following formula:

$$PI = \text{Price of tariff} * \text{Quantity of Production}$$

### **3. Infrastructure Support (IS<sub>P</sub>) and Inputs Assistance (IA<sub>P</sub>)**

These categories include the same programs as for the grower. Such programs are composed of subsidies for processors as well as for producers. Budget outlays for these programs are prorated for the amount of peaches that go to processing.

PSEs on the producer and processor level would be calculated as:

$$PSE(\text{grower}) = MPS_G + MA + IS_G + IA_G / \text{Value of Production}$$

$$PSE(\text{processor}) = MPS_P + PI + IS_P + IA_P / \text{Value of Production}$$

### Problems associated with a PSE for canning peaches only

Several technical issues arise when attempting to calculate a PSE for a product which has multiple uses and market outlets. In several EU countries, two distinct types of peaches are produced. One type has attributes ideal for canning/ processing. Another type has varietal and quality attributes more suitable to the fresh market. While the major market orientation of the two types (fresh versus processed) is distinct, the separation is probably not as clear-cut in actual markets, with some canning peaches being sold in the fresh market. However, because the PSE calculation for the United States was for clingstone peaches (see Chapter III), the major canning variety with negligible sales to the fresh market, an attempt was made to calculate a PSE for the EU which would largely reflect the levels of support for canning-type peaches. Only two market outlets were assumed for EU canning-type peaches--sales to canners and "sales" into the withdrawal system. Therefore, the "value of production" used in the EU PSE for peaches is the value of sales to canners and the value of peaches submitted for withdrawal.

### PSE Results for the EU and Greece

A summary of the EU and Greek Percentage PSEs (the value of government support as a percentage of the value of production) for the peach producer and canned peach processor for the years between 1989 and 1995 are as follows:

**Table 2 -- Summary: EU and Greek Percentage PSEs for Peach Growers and Processors**

	PSE (producer)		PSE (processor)	
	EU	Greece	EU	Greece
	-----	<i>Percent</i>	-----	
1989/90	73	71	22	22
1990/91	76	79	23	27
1991/92	75	74	22	25
1992/93	78	74	21	24
1993/94	77	76	22	28
1994/95	72	72	22	26
1995/96	74	77	22	23

The total value of the EU's support to peach producers, expressed as a percentage of the value of peach production (sales to processors and "sales" to the withdrawal system) ranges over the period from 72 to 78 percent. In other words, 72 to 78 percent of the value of canning peach production stems from some type of government (EU) program. These EU PSEs for peach

growers are considerably higher than the calculated PSE for U.S. cling peach growers of 5 to 8 percent (see Appendix I and Chapter III) .

In any year, the largest component of the EU level of support for canning peach growers comes from market price support programs (table 3). Of the total value of government support, market price support programs account for over 95 percent. Support in the form of general services and other non-product-specific expenditures accounts for less than 5 percent of the total value of government support to peach growers in the EU.

The Greek PSE for peach producers is calculated at about the same general levels as those for the EU overall--ranging from 71 to 79 percent (table 4). The substantially higher levels of producer support for Greek peach growers, as compared to support for U.S. cling peach growers, is illustrative of the market price incentives which awaited Greek peach producers upon accession. Coupled with the theory of input markets, the high levels of government support provide an economic rationale for the growth in Greek peach production since 1980 (see chart 5 ).

The processing aid, which the EU provides to peach processors, enters the processor PSE as a subsidy to offset the higher MGP, which processors are required to pay peach growers. In essence, the processing aid is treated as a zero net subsidy to the processors. The most significant component of the level of government support for peach processors in the EU comes from the 24-percent duty assessed on imports of canned peaches. The import duty provides a level of market price support. Other support is provided through non-product-specific general service programs. The level of government support for peach processors, expressed as a percentage of the value of canned peach production ranges over the 1989-1995 period from 21 to 23 percent (table 3). The calculated PSE's for peach processors in the EU are somewhat higher than the levels calculated for U.S. peach processors (16 to 17 percent).

The Greek PSE for peach processors is calculated in table 4. In general, the Greek processor PSE runs somewhat higher than the overall EU PSE for processors, in the 22 to 28 percent range. Given that the EU/Greek processor PSE is only somewhat higher than the U.S. processor PSE, and based on what is known about the EU program of support for peach processors, it appears that those programs of government support alone do not explain the increased competitive position of EU, particularly Greek, canned peaches in the U.S. or the international market.

**Table 3**  
**Producer Subsidy Equivalents (PSE) for Peaches Used for Processing or Withdrawal**  
**European Union-15, 1989-1995**

EU PSE (Grower)	1989	1990	1991	1992	1993	1994	1995
1,000 ECU							
Production Aid/1	60450	56390	73600	72840	40510	47000	49400
Withdrawal (CWC) Program/2	105400	87910	76980	160660	131140	118740	130500
<b>Total market price support</b>	<b>165850</b>	<b>144300</b>	<b>150580</b>	<b>233500</b>	<b>171650</b>	<b>165740</b>	<b>179900</b>
Promotion Measures /3	0	0	0	118	340	451	0
Tree-Pull (Grubbing-Up) Program /3	0	0	0	0	0	0	0
<b>Total marketing assistance</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>118</b>	<b>340</b>	<b>451</b>	<b>0</b>
General expenditures /4	1780	1841	1858	1850	1903	1951	1977
<b>Total infrastructure support</b>	<b>1780</b>	<b>1841</b>	<b>1858</b>	<b>1850</b>	<b>1903</b>	<b>1951</b>	<b>1977</b>
Insurance, Fertilizer, Interest Subsidies /4	214	221	223	222	228	234	237
<b>Total input assistance</b>	<b>214</b>	<b>221</b>	<b>223</b>	<b>222</b>	<b>228</b>	<b>234</b>	<b>237</b>
<b>Total value of government support</b>	<b>167844</b>	<b>146362</b>	<b>152662</b>	<b>235690</b>	<b>174121</b>	<b>168376</b>	<b>182114</b>
<b>Value of production</b>	<b>229694</b>	<b>192971</b>	<b>204782</b>	<b>302579</b>	<b>225142</b>	<b>233570</b>	<b>246384</b>
<b>PSE (grower)</b>	<b>73.07%</b>	<b>75.85%</b>	<b>74.55%</b>	<b>77.89%</b>	<b>77.34%</b>	<b>72.09%</b>	<b>73.91%</b>
EU PSE (Processor) (1,000 ECU)	1989	1990	1991	1992	1993	1994	1995
Processing Aid (subsidy) /1	60450	56390	73600	72840	40510	47000	49400
MGP (tax) /1	-60450	-56390	-73600	-72840	-40510	-47000	-49400
<b>Total market price support</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Import Tariffs /5	53011	45885	62696	80274	51865	59974	60967
<b>Total price intervention</b>	<b>53011</b>	<b>45885</b>	<b>62696</b>	<b>80274</b>	<b>51865</b>	<b>59974</b>	<b>60967</b>
General expenditures /3	8027	8300	8380	8342	8580	8796	8913
<b>Total infrastructure support</b>	<b>8027</b>	<b>8300</b>	<b>8380</b>	<b>8342</b>	<b>8580</b>	<b>8796</b>	<b>8913</b>
Insurance & Interest Subsidies/3	752	777	785	781	803	824	835
<b>Total input Assistance</b>	<b>752</b>	<b>777</b>	<b>785</b>	<b>781</b>	<b>803</b>	<b>824</b>	<b>835</b>
<b>Total value of government support</b>	<b>61790</b>	<b>54963</b>	<b>71861</b>	<b>89398</b>	<b>61249</b>	<b>69593</b>	<b>70715</b>
<b>Value of production</b>	<b>279006</b>	<b>241500</b>	<b>329978</b>	<b>422496</b>	<b>272976</b>	<b>315650</b>	<b>320880</b>
<b>PSE processor</b>	<b>22.15%</b>	<b>22.76%</b>	<b>21.78%</b>	<b>21.16%</b>	<b>22.44%</b>	<b>22.05%</b>	<b>22.04%</b>

/1 Agricultural Situation in the EU, 1989-1995

/2 USDA-FAS, as submitted by the EU in response to a request by the G-6 countries

/3 General Budget of the EC, 1989-1995

/4 WTO Committee on Agriculture, Domestic Support Measures

/5 WTO Tariff Schedules for the EC, Chapter 20



**Table 4**  
**Producer Subsidy Equivalents (PSE) for Peaches Used for Processing or Withdrawal**  
**Greece, 1989-1995**

Greek PSE (grower)	1989	1990	1991	1992	1993	1994	1995
1000 ECU							
Production Aid/1	29688	31145	36654	30693	19578	26908	32544
Withdrawal (CWC) Program/2	48420	61232	57444	107336	86800	93200	107200
<b>Total market price support</b>	<b>78108</b>	<b>92377</b>	<b>94098</b>	<b>138029</b>	<b>106378</b>	<b>120108</b>	<b>139744</b>
Promotion Measures /3	0.0	0.0	0.0	73.5	251.4	335.2	0.0
Tree-Pull (Grubbing-Up) Program/3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total marketing Assistance</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>73.5</b>	<b>251.4</b>	<b>335.2</b>	<b>0.0</b>
General expenditures /4	889.2	1184.7	1200.8	1157.4	1407.5	1449.2	1351.6
<b>Total infrastructure support</b>	<b>889.2</b>	<b>1184.7</b>	<b>1200.8</b>	<b>1157.4</b>	<b>1407.5</b>	<b>1449.2</b>	<b>1351.6</b>
Insurance, Fertilizer, Interest Subsidies/4	106.8	142.2	144.2	138.9	169.0	174.0	162.3
<b>Total input assistance</b>	<b>106.8</b>	<b>142.2</b>	<b>144.2</b>	<b>138.9</b>	<b>169.0</b>	<b>174.0</b>	<b>162.3</b>
<b>Total value of government support</b>	<b>79104</b>	<b>93704</b>	<b>95443</b>	<b>139399</b>	<b>108206</b>	<b>122066</b>	<b>141258</b>
<b>Value of production</b>	<b>112026</b>	<b>118759</b>	<b>129369</b>	<b>189689</b>	<b>142827</b>	<b>168747</b>	<b>182986</b>
<b>PSE (grower)</b>	<b>70.6%</b>	<b>78.9%</b>	<b>73.8%</b>	<b>73.5%</b>	<b>75.8%</b>	<b>72.3%</b>	<b>77.2%</b>
Greek PSE (Processor) (1,000 ECU)	1989	1990	1991	1992	1993	1994	1995
Processing Aid (subsidy) /1	29688.439	31144.962	36653.642	30693.09	19578.27	26908.008	32544.292
MGP (tax) /1	-29688.44	-31144.96	-36653.64	-30693.09	-19578.27	-26908.01	-32544.29
<b>Total market price support</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Import Tariffs /5	26479.4	29532.2	40509.3	50219.9	38365.9	44555.7	41689.2
<b>Total price intervention</b>	<b>26479.4</b>	<b>29532.2</b>	<b>40509.3</b>	<b>50219.9</b>	<b>38365.9</b>	<b>44555.7</b>	<b>41689.2</b>
General expenditures /3	4010	5342	5415	5219	6347	6535	6095
<b>Total infrastructure support</b>	<b>4009.8</b>	<b>5342.3</b>	<b>5414.6</b>	<b>5219.0</b>	<b>6346.9</b>	<b>6535.0</b>	<b>6094.9</b>
Insurance & Interest Subsidies/3	375.4	500.2	507.0	488.7	594.3	611.9	570.7
<b>Total input assistance</b>	<b>375.4</b>	<b>500.2</b>	<b>507.0</b>	<b>488.7</b>	<b>594.3</b>	<b>611.9</b>	<b>570.7</b>
<b>Total value of government support</b>	<b>30864.6</b>	<b>35374.7</b>	<b>46430.9</b>	<b>55927.7</b>	<b>45307.0</b>	<b>51702.6</b>	<b>48354.8</b>
<b>Value of production</b>	<b>142768.08</b>	<b>132237</b>	<b>185125.82</b>	<b>237445.36</b>	<b>162527.88</b>	<b>200582.2</b>	<b>210375.2</b>
<b>PSE processor</b>	<b>21.6%</b>	<b>26.8%</b>	<b>25.1%</b>	<b>23.6%</b>	<b>27.9%</b>	<b>25.8%</b>	<b>23.0%</b>

/1 Agricultural Situation in the EU, 1989-1995

/2 USDA-FAS, as submitted by the EU in response to a request by the G-6 countries.

/3 General Budget of the EC, 1989-1995, prorated on the basis of Greek production as portion of total EU production.

/4 WTO Committee on Agriculture, Domestic Support Measures

/5 WTO Tariff Schedules for the EC, Chapter 20

## Abuse of the Withdrawal System--The Real Issue?

EU market support programs for growers of canning-type peaches, *prima facie*, may explain the significant peach production increases in Greece, but not necessarily the lower prices (compared to world prices) that the EU, and particularly Greece, seem to manifest in canned peaches. EU production increases have occurred almost entirely in Greece, which can produce peaches at a price at least 10 percent below its main European competitor, Spain<sup>2</sup>. Greece also submits a significant amount of peaches to be withdrawn from the market, almost 54 percent of production between 1992-95. This is more than 20 times as much as Spain's withdrawal amounts. Since the EU market support programs apply to all EU countries, some analysts have found it peculiar that Greece could be offering canned peaches at a significantly lower price than other EU countries.

A paper by the Catholic University of Louvain (1998) found several differences in Greek production methods that may account for the lower prices. Greek production is concentrated on a generic, lower-quality market for peaches, a market that many of Greece's competitors may have ignored. In addition, Greek producers seem to rely on a different quality control system that reduces production costs. However, the same study also found that many other European countries have more experience than Greece in producing canned peaches and offer similar if not better land and growing conditions for peaches. The Louvain study attributes the price advantage of Greek producers to a much greater degree to abuse of EU subsidy programs than to production efficiencies.

There seem to be two different types of abuse of the withdrawal system at work. The first (type-one withdrawal abuse) is by submitting peaches for withdrawal that do not meet quality standards of the withdrawal program. This allows EU producers to receive withdrawal subsidies for peaches to which they are not entitled according to the CWC quality standards. Note that only EU peach producers benefit from this type of withdrawal system abuse. Since below minimum quality standard peaches could not likely be marketed to peach processors, processors receive no benefit from this type of abuse.

The second type of abuse is more complex than the first. EU/Greek producers submit peaches for withdrawal that meet the quality standards of the withdrawal program and receive a withdrawal subsidy. However, instead of disposing of the peaches, EU/Greek producers either present them to the fresh market or offer them to canned peach processors at a price lower than Minimum Grower Price. Since producers are already receiving the withdrawal price, they can accept a lower price from the canner and still earn more revenue than they would if they were receiving

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<sup>2</sup> "The Impact of the CMOs and their Application on the Processed Fruit and Vegetables Market: The Case of Canned Peaches", Henin V., Piroette N., Degand J., Henry de Frahan B., Catholic University of Louvain, Department of Agricultural Economics, May 1998

either the withdrawal price or the MGP alone. Canned peach processors purchase peaches at a lower price than the MGP and submit claims for the full processing aid, receiving an added benefit (subsidy) equivalent to the difference between the lower purchase price and the MGP. While it is not likely that all the “marketed” withdrawn fruit finds its way to canners, another version of this second type of abuse contends that peach processors in Greece maintain some measure of market power (oligopsony) on the input (fresh peach) side of the canned peach market. This market power, combined with an almost always over-supplied market for canning peaches and the knowledge of abuse of the withdrawal system by growers (whether on the fresh or canning market), allows the processors to pressure down prices paid to growers to below the MGP. Under these scenarios of “type-two” withdrawal abuse, both the grower and the processors receive an added benefit (subsidy). Obviously, these scenarios depend on both producers and processors collaborating to abuse the system, and a lack of control over verifying claims of withdrawal and processing aid.

A Council of Auditors report<sup>3</sup> in 1995 found evidence of type-one withdrawal abuse, estimating the value of overcompensation at 6.9 million ECU for 1993. In another case, estimates were in the range of 30 million ECU for 1993 and 1994. While there was no evidence of the second type of abuse, the same Auditors report found that “there was no control or documentation to ensure that withdrawn produce was not re-presented to the market.” Some evidence of possible type-two withdrawal abuse can be deduced from Lynch and Moulton (1995). In their study of Greek processing costs for canned peaches for the 1994 processing year, Lynch and Moulton note an exceptionally high recovery rate on the part of Greek peach processors of 62.4 standard cases of canned peaches per metric ton of raw product (fresh peaches). The Greek Processor’s Association, however, estimated the typical range for the recovery rate, which can vary from year-to-year, at 52 to 57 cases. While the recovery rate was calculated for a single year (1994), the exceptionally high rate could be an indicator of “slippage” in the control and documentation of the withdrawal and the MGP/processor aid systems; understating the quantity of peaches delivered to processors and/or overstating the quantity of canned peaches produced (on which the processor aid is based).

In October 1996, in an attempt to control the amount of abuse, the EU implemented reforms to the withdrawal system. Given the limited use of the withdrawal system as a result of the poor peach harvest in 1997, there is little evidence available to judge the ability of the reforms to correct the problem.

### **Measuring the Potential for Abuse of the Withdrawal System**

Relative to the claims of abuse of the EU’s peach withdrawal system, ERS attempted to measure the potential for abuse of the Withdrawal System. Peach production and disposition for the EU and selected member countries were studied in an attempt to isolate any “double-counting” in the

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<sup>3</sup> Official Journal of the European Communities, C303,14/11/95, 95/C, 303/01

disposition of peaches. The assessment assumes that harvested peach production is disposed in three ways--sold to processors/ canners, "bought-in" through the withdrawal system, or enters the fresh market where peaches are exported fresh or consumed domestically. Harvested production, peaches withdrawn from the market, and peaches sold to canners (the quantity receiving processing aid converted to fresh equivalent) can be taken from official EU statistical sources. Harvested production, less sales to canners, less the quantity reported withdrawn from the market provides a "residual" which approximates the quantity of peaches available for the fresh market. This "residual" would also include waste, loss, and other unaccountable uses, but overall should provide a fair approximation of potential availabilities to the fresh market.

Subtracting fresh peach exports and adding-in fresh peach imports provides an estimate of apparent domestic consumption of fresh peaches. Since marketing year trade data were unavailable, calendar year trade quantities for fresh peaches were used as a proxy for net exports (fresh exports less fresh imports). Assuming that the heaviest period of fresh peach trade is immediately following the harvest (July), calendar year trade quantities for 1992 were associated with the 1992/93 (July-June) marketing year for peaches.

The residual quantity available for the fresh market less the estimate of net exports provides an indicator of apparent use/ consumption of peaches from the fresh market. Dividing the apparent consumption by population gives an indicator of per capita consumption which can be compared and contrasted across EU member countries.

The data in table 5 work through the production and disposition of peaches for the EU-12 and for Italy, Spain, and Greece for the 4-year period 1992/93 through 1995/96. The apparent per capita consumption of fresh peaches in the EU is calculated at roughly 6 kilograms. By comparison, the per capita consumption of fresh peaches in the United States is roughly 3 kilograms. It is expected that the consumption/demand for fresh peaches in the domestic market would be relatively stable from year-to-year, barring any exceptional fluctuations in harvests. The calculated per capita level for the EU holds relatively stable over the 4-year period, an indication that this method of determining the level of consumption/demand for fresh peaches in the domestic market is a reasonable approach.

At the member-country level, the apparent per capita consumption for fresh peaches in Italy is calculated at 9-12 kgs. over the 4-year period. For Spain, the per capita level approaches 16 kilograms. The calculated levels for Italy and Spain are also relatively stable. Spain's per capita consumption falls significantly in 1995/96, but that fall may be traced to an extremely poor harvest. The calculated apparent per capita consumption of peaches for Greece, however, yields vastly different results. Not only are the calculated per capita levels unreasonably low for a major peach producer, ranging from 2 to 8 kgs. in three of the years, but the calculated per capita levels are extremely variable, from a low of 2 kgs. in 1992/93 to a high of 14 kgs. for 1995/96.

Since the actual per capita consumption of fresh peaches in Greece would be expected to be in the range of those for Italy and Spain, one conclusion which can be drawn is that there is some

**Table 5 -- Peach Production and Disposition, EU-12 and Selected EU-Member Countries**

	1992/93	1993/94	1994/95	1995/96
<b>EUROPEAN UNION (EU-12)</b>				
	1,000 metric tons			
Harvested production	3,610	3,374	3,616	2,756
Withdrawal	890	690	799	225
Sales to processors	531	409	482	486
Residual--for use in fresh market	2,189	2,275	2,335	2,045
Net exports cal. yr. fresh peaches	105	95	169	86
Apparent fresh consumption	2,084	2,180	2,166	1,959
Population 1995--349.6 million				
Per capita consumption (fresh) Kgs.	5.96	6.24	6.20	5.60
<b>ITALY</b>				
Harvested production	1,289	1,167	1,220	963
Withdrawal	160	48	73	12
Sales to processors	85	49	40	32
Residual--for use in fresh market	1,044	1,070	1,107	919
Net exports cal. yr. fresh peaches	498	395	575	366
Apparent fresh consumption	546	675	532	553
Population 1995--57.2 million				
Per capita consumption (fresh) Kgs.	9.55	11.80	9.30	9.67
<b>SPAIN</b>				
Harvested production	867	857	871	661
Withdrawal	38.4	35	21.3	3
Sales to processors	113.4	91.1	97.6	107
Residual--for use in fresh market	715.2	730.9	752.1	551
Net exports cal. yr. fresh peaches	79	114	108	89
Apparent fresh consumption	636.2	616.9	644.1	462
Population 1995--39.2 million				
Per capita consumption (fresh) Kgs.	16.23	15.74	16.43	11.79
<b>GREECE</b>				
Harvested production	986.9	961	1084	697
Withdrawal	597.7	580.8	657.4	169.7
Sales to processors	307.9	243.7	317	317.7
Residual--for use in fresh market	81.3	136.5	109.6	209.6
Net exports cal. yr. fresh peaches	57.2	54.6	60.5	67
Apparent fresh consumption	24.1	81.9	49.1	142.6
Population 1995--10.4 million				
Per capita consumption (fresh) Kgs.	2.32	7.88	4.72	13.71

Sources: Harvested Production and Withdrawal--Agricultural Situation in the European Union, Various Issues, 1992-1997  
Sales to Processors--USDA/FAS, Horticultural Products Review, various issues; USDA/FAS Canned Deciduous Fruit Reports, Annual and Semi-annual issues 1994-1997. Net Trade--FAO Trade Yearbook, various Issues, 1993-1997.

“double-counting” involved, i.e., an over-counting of the quantity of peaches actually withdrawn from the market. That is, not all the peaches being recorded as “bought-in” were actually withdrawn from the market. Some quantities recorded as withdrawn made their way to the market, either the fresh market or to the processed market.

### **Double-Counting in the Greek Withdrawal System and Implications for the PSE**

In an effort to gauge the potential extent of “double counting” within the Greek peach market, the same method used to derive the apparent consumption of fresh peaches was extended back to cover a period just prior to Greece’s accession to the EU (table 6). The calculated per capita levels of fresh peach consumption just prior to, and immediately after, accession were in the 16+ kilogram range, a per capita consumption level close to that derived for Spain, another major Mediterranean peach producer. Note the dramatic fall in the derived per capita levels beginning about 1989/90.

Assuming that Greece’s actual per capita demand/ consumption of fresh peaches is 16.5 kilograms (based on the derived levels for the early 1980’s), then the difference between 16.5 and the derived per capita levels for the period beginning in 1989/90, multiplied by the Greek population would provide some quantitative estimate of the potential “double counting” within the Greek peach market. In most years from 1989/90 onward, the potential for “double counting” (abuse of the withdrawal system) is roughly equivalent to 40 percent of the fresh product sold to canners. Valuing the potential withdrawal abuse at the average withdrawal subsidy provides an estimate of the value of the benefit of the abuse of the withdrawal system to peach producers. For the period from 1989 to 1994, the value of the withdrawal abuse ranged from 6 million ECU to 26 million ECU. Withdrawal levels were negligible in 1997/98 because of the poor peach harvest.

A revised PSE for the producer was calculated by using the value of “double counting” as a proxy for the added subsidy provided by the withdrawal system ( table 7).

The original PSE calculation for the producer (the first column in table 7), since it is the actual budgetary withdrawal expenditure, already includes the added subsidy associated with abuse of the withdrawal system. Removing the value of the abuse from the PSE calculation provides an indication of the levels of support the EU system would provide Greek peach producers if there was no abuse. In some years, 1989/90 for example, the PSE falls by more than 21 percent, from a PSE of 71 percent to 56 percent with no abuse. (See Appendix table I-2 for details of revised PSE calculations).

Estimating the level of government support for Greek peach processors, given some estimate of abuse of the withdrawal system, is more problematic. In table 8, two sets of revised PSEs for the processor are shown, each calculated by using different estimates of the degree to which processors might benefit from grower abuse of the withdrawal system.

TABLE 6 --- Greece: Peach Production and Disposition, 1978-1997

Year	Peaches harvested 1/	Production receiving processor aid 2/	Fresh product to canners 3/	Peaches withdrawn 4/	Residual to fresh market 5/	Net exports fresh CY 1981 = MY 81/82 6/	Apparent domestic consump. (fresh) 7/	Per cap consump. (fresh) 8/	Potential withdrawal abuse (assume min. per cap 16.5) mt 9/	Average withdrawal subsidy 10/	Value of potential withdrawal abuse
								Kg.	Metric ton	ecu/mt	ecu mill.
					-----Metric ton-----						
1978-80 avg	364,000	113,000	95,553	N.A.	268,447	113,000	155,447	16.19			
1981/82	477,000	130,000	109,928	106,270	260,802	63,951	196,851	20.29			
1982/83	460,300	155,218	131,252	78,417	250,631	92,281	158,350	16.24			
1983/84	479,275	159,339	134,737	126,137	218,401	58,264	160,137	16.34			
1984/85	579,080	180,203	152,380	139,860	286,840	62,795	224,045	22.75			
1985/86	524,075	173,326	146,564	149,706	227,805	64,023	163,782	16.54			
1986/87	557,325	201,748	170,598	165,193	221,534	60,000	161,534	16.23			
1987/88	606,230	198,035	167,458	231,142	207,630	61,767	145,863	14.59			
1988/89	621,510	248,250	209,920	182,367	229,223	60,000	169,223	16.84			
1989/90	616,410	261,479	221,107	263,695	131,608	54,781	76,827	7.61	89,823	183.62	16.5
1990/91	763,920	251,876	212,986	375,182	175,752	45,183	130,569	12.86	36,906	163.21	6.0
1991/92	722,774	317,542	268,514	326,489	127,771	78,229	49,542	4.86	118,758	175.94	20.9
1992/93	986,869	364,183	307,953	597,684	81,232	57,167	24,065	2.35	145,060	179.59	26.1
1993/94	961,000	288,170	243,677	580,788	136,535	54,600	81,935	7.95	88,015	149.45	13.2
1994/95	1,084,000	374,919	317,032	657,409	109,559	61,807	47,752	4.61	121,681	141.77	17.3
1995/96	697,000	375,670	317,667	169,738	209,595	66,989	142,606	13.71	22,005	631.56	13.9
1996/97	813,000	378,000	319,637	313,986	179,377	44,540	134,837	12.90	37,588	73.89	2.8
1997/98	280,000	173,841	147,000	7,500	125,500	N.A.	125,500	11.95	0	146.5	0.0

## Sources/ Notes:

n.a.= data not available, assumed to be 0

Data for 1978-80 from: Moulton, "The EC's Horticultural Trade", 1983

1/"Agricultural Situation in the European Union", various issues 1982-1997

2/ FAS data from EU Budgetary Information

3/ Converted from production receiving processing aid to fresh equivalent at 0.8456.

4/ FAS data from canned deciduous fruit reports from Agricultural Attache

5/ Residual=col.1 - cols.3 &amp;4.

6/ Fresh peach exports less fresh peach imports; Source: FAO Trade Yearbook, various issues, 1983-1996

7/ Apparent fresh peach availability for domestic consumption.

8/ Calculated based on population of 9.6 million in 1978-80, increasing to approx. 10.5 million by 1997

9/ Assumes per capita fresh peach consumption of approx. 16.5 kgs. for years 1989-97; based on 1978-89 calculation from apparent domestic consumption

10/ FAS data based on EU Withdrawal expenditure information.

**Table 7 -- Summary: Revised Greek PSE (producer), Accounting for Measure of Withdrawal Abuse**

Year	PSE with withdrawal abuse	PSE without withdrawal abuse (Scenario 1)	% difference
	<i>Percent</i>	<i>Percent</i>	
1989/90	71	56	21.2%
1990/91	79	74	6.3%
1991/92	74	58	21.6%
1992/93	74	60	18.9%
1993/94	76	67	11.8%
1994/95	72	62	13.9%
1995/96	77	70	9.1%

In both scenarios, the value of the withdrawal system abuse, or the value of the added benefit to the peach growers, is used as a proxy for the added benefit, or “hidden subsidy”, to the processor. The two scenarios assume differing degrees of market power held by processors that enable them to reduce the price paid to peach growers below the MGP. The processors accrue an added benefit, or subsidy, which is equivalent to the value of the price discount (the discounted price from the MGP paid to growers for the quantity of peaches purchased for canning). In the revised PSE calculations this added benefit/subsidy is shown as a reduction in the MGP tax to the canners (see the EU PSE discussion in Appendix I).

In Scenario 1, the assumption is made that processors benefit from the abuse of the withdrawal system to the same extent as peach growers, i.e. the value of the benefit of abuse of the withdrawal system is the same for both producer and processor. As mentioned above, it assumes that processors maintain some degree of market power which allows them to purchase peaches at or below the MGP. In Scenario 1, using the value of the benefit from the abuse of the withdrawal system as a proxy for the added benefit to processors is roughly equivalent to processors having the market power to reduce prices paid for peaches by as much as 29 percent (1989/90) from the Minimum Grower Price. In 1989/90, for example, if Greek processors were able to benefit to the same extent as producers, the “hidden” subsidy would have increased the PSE for processors by as much as 50 percent, from a PSE



**Table 8 -- Summary: Revised Greek Processor PSE, Assuming Different Degrees of Grower Subsidy Transmission**

Year	PSE without withdrawal abuse	PSE with withdrawal abuse			
		Scenario 1 (Full transmission of added grower benefits to processors)		Scenario 2 (50% transmission of added grower benefits to processor)	
	<i>Percent</i>	<i>Percent</i>	<i>% difference</i>	<i>Pct.</i>	<i>% difference</i>
1989/90	22	33	50.0%	27	22.7%
1990/91	27	31	14.8%	29	7.4%
1991/92	25	36	44.0%	31	24.0%
1992/93	24	35	45.8%	29	20.8%
1993/94	28	36	28.6%	32	14.3%
1994/95	26	34	30.8%	30	15.4%
1995/96	23	30	30.4%	26	13.0%

of 22 percent assuming no added subsidy, to a PSE of 33 percent, assuming full transmission of the added subsidy from growers to processors.

Since a full transmission of the added subsidy from growers to processors is unlikely, another scenario (Scenario 2) was created, in which it is assumed that processors benefit only half as much from the added subsidy from abuse of the withdrawal system. In Scenario 2, using one-half of the value of the benefit from the abuse of the withdrawal system as a proxy for the added benefit to processors is roughly equivalent to processors having the market power to reduce prices paid for peaches by as much as 15 percent (1989/90) from the Minimum Grower Price. In this case, the "hidden" subsidy increased the PSE for processors by as much as 24 percent, from a PSE of 25 percent in 1991/92, assuming no added subsidy, to 31 percent assuming transmission of half of the added subsidy from growers to processors. Regardless of the scenario, the potential for processors to benefit from "hidden" subsidies could explain as much of the enhanced competitive position of Greek peach processors in the international market in the late 1980's and the 1990's, as a focus only on the level of direct processing aid.

## Changes in the EU Common Organization for Fruits

The EU has not announced any intention of eliminating support programs for peach growers or peach processors, contending that such subsidies are completely legal according to the GATT and the 1987 Canned Fruit Accord. However, in October 1996, the EC Council instituted a series of reforms to the Common Market Organizations (CMOs) for fresh and processed fruits and vegetables, including peaches.<sup>4</sup> The reforms entered into effect on January 1, 1997 but are transitioned in over a five-year period. The majority of reforms were to the Withdrawal System, which has been renamed the "Community Withdrawal Compensation" or CWC. A summary of the reforms follows:

- Withdrawal prices are now established at identical and fixed levels for the entire season and throughout the European Community
- Withdrawal prices have been predetermined and at progressively decreasing levels, going from 14.65 ECU/100kg in 1997/98 to 10.00 ECU/100 kg by 2002.
- The threshold for harvested production was usually an arbitrarily set number by the EC. It has now been replaced with a quota proportional to production.
- New thresholds for withdrawn peaches have also been established. Withdrawal compensation is limited to 10 percent of the quantity commercialized by each producer organization starting in 6 years, or 2002. A 5-year transition program was also established, where withdrawals were limited to the following percentages of marketed production: 50 percent in the first marketing year, 45 percent in the second, 40 percent in the third, 30 percent in the fourth, 20 percent in the fifth, and 10 percent in the sixth and final year.

In addition to these reforms, there have been tighter controls over claims for withdrawal or production subsidies by member countries. Processors must buy their peaches through a common producer organization (PO) instead of from individual producers. The buying price of fresh peaches between the processor and producer can still be no lower than the MGP. The processor receives a community compensation (i.e. processing aid) according to the quantities delivered for processing. Community subsidies are bound and payments are done directly through bank account transfers based on a delivery contract between the PO and the processor.

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<sup>4</sup>Council Regulation (CE) No 2200/96 of 28/10/96 on the CMO in the fruit and vegetables sector and Council Regulation (CE) No. 2201/96 of 28/10/96 of the CMO in the processed fruit and vegetable products.

EU officials have stated that such reforms will address the concerns of the United States and other canned peach exporters about the excesses and mismanagement of subsidies provided to the EU canned peach industry. However, it is too early to tell if such reforms will change the volume and value of peaches submitted for withdrawal or for processing aid. Since Greece submits a higher percentage of its peaches for withdrawal than any other EU member country, it is reasonable to assume that they would be most affected by the reforms. Stricter controls will leave less opportunity for possible abuse of the withdrawal system through producer-processor collaboration or "double-counting." At the same time, the decreased withdrawal price may make the grubbing-up program more attractive. The Government of Greece, under EU guidelines, has a policy to "grub-up" (uproot) 15,000 hectares of peaches and nectarines, which is equivalent to 28 percent of the 53,000 hectares planted in Greece in 1995<sup>5</sup>. Figures announced at the World Peach Conference indicate that 5,250 hectares of peaches had been uprooted by the end of 1996. An additional 2,780 hectares of peaches and nectarines were uprooted as of April, 1998, according to the Foreign Agriculture Service of the USDA. The Louvain study points out that while such reforms may be successful in reducing some abuse of the system, it will probably not eliminate all of the abuse. The reforms address only a part of the canned fruit regime, the withdrawal system. Payment of the MGP to growers and processing aid to processors remains. The Louvain study recommended that the production aids be granted directly to the producer, rather than indirectly through the canned peach processor, so there would be less opportunity for illegal price setting between the producer and processor.

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<sup>5</sup> Source: FAO production yearbook, 1996

### **III.**

### **THE U.S. CANNED PEACH INDUSTRY**

#### **Introduction**

The U.S. canned peach industry continues to face changes in consumer demand, industry structure, and competition from foreign suppliers. Average U.S. per capita consumption of canned peaches shrank 29 percent from the late 1970s to the 1990s (see table 9 and appendix table II-3). This trend is consistent with a general decline in canned fruit consumption as more fresh fruits become available during the winter months. Average bearing acreage declined 36 percent from the late 1970s to the 1990s, although the production of canned peaches only declined 25 percent, in part due to increased orchard productivity. U.S. exports of canned peaches have also declined 59 percent from the 1970s to the 1990s, in part due to increased competition from other foreign suppliers. The U.S. was a net exporter of canned peaches through 1982, and a net importer from 1983 through 1989. From 1990 to 1997, the United States was a net exporter in 4 of 8 years. Average annual net exports declined 97 percent from 129 million pounds in the late 1970s to 4 million pounds in the 1990s. Imports, which were negligible prior to 1983/84 season, averaged 6 percent of domestic production in the 1990s. While the U.S. industry has contracted, production of canned peaches has increased elsewhere, with Greek production soaring 140 percent from 1982 to 1996.

#### **Cling Peach Production and Industry Structure**

The canned peach industry is centered in California where 97 percent of peaches for canning were produced in 1997. In the United States, canned peaches are almost exclusively cling peaches which remain firm when canned. In 1997, the California cling peach harvest was valued at \$116 million. In 1989/90 to 1993/94 there were 750 cling peach growers (Moulton). Cling peaches are grown for the canning market and have virtually no fresh market. In 1998, 68 percent of the cling peach crop went to canned peaches, 25 percent to fruit cocktail, 5 percent to mixed fruit, 2 percent to frozen products, and less than 1 percent to baby foods and other products.

Since cling peach growers are completely dependent on the canned market, unlike other fruit producers who can sell their product in the fresh or processed market, the relationship between grower and canner is critical. The number of canners has declined from 42 in 1952 to just 3 in 1997. In 1998, Morning Star, through its subsidiary, California Fruit Packing Company, began to can peaches, the first new industry entrant in years, bringing the total number of canners up to 4. Tri-Valley and Del Monte are the largest canners and accounted for an estimated 85 percent of the pack in 1994 (Moulton, 1995). Tri Valley is a grower-owned cooperative. Del Monte is a private firm with a well-known brand label. Pacific Coast is also a cooperative. Morning Star is a large, private tomato canner with interest in expanding its product line. Five other firms process baby food, frozen peaches, and other small-volume products.

Table 9. Economic Indicators of the U.S. Canned Peach Industry

Item		1975/76-1979/80 1/	1980/81-1989/90	1990/91-1997/98
Number of processors 2/	number	12	8	4
Bearing acres	acres	45,929	30,792	29,511
Pack (product weight) 3/	million pounds	1,044	754	780
Imports (product weight)	"	0	45	49
Exports (product weight)	"	129	53	53
Government purchases (product weight)	"	57	45	37
Ending stocks (product weight)	"	222	177	149
Grower price per ton raw product 4/	\$	292.9	258.54	229.79
f.o.b.canner price 4/ 5/	\$	23.47	23.70	21.23
Processor margin per ton 4/ 5/ 6/	\$	18.15	18.99	17.06
Per capita consumption	pounds	4.13	3.16	2.94

1/ Crop year begins June 1.

2/ Average number of processors for 1975-79 based on 1976. Average number of processors for 1980-89 based on 1984 (French and King, 1986). The number for 1990-97 is based on 1998 numbers.

3/ Canned peach production used only in canned peaches, not in fruit cocktail. Assuming a case of 24 #2.5 cans weighs 43.5 pounds product weight.

4/ Real price using the consumer price index for processed fruit with 1997=100 as a deflator.

5/ For a case of 24 #2.5 cans.

6/ Processor margin is f.o.b. price minus peach grower price. Assuming that a case of 24 #2.5 cans is equivalent to 36.36 pounds of farm product weight.

Source: ERS Fruit and Tree Nut Situation and Outlook Report Yearbook, 1998, California Canning Peach Association, French and King (1986)

Mexico is another important market for fresh U.S. cling peaches. Fresh peaches are shipped to Mexico and canned there to supply the Mexican market. In 1992, a new cannery opened in Baja California, and in the 1997 season, over 95 percent of the cling peaches going to Mexico (measured in canned product weight) were shipped fresh. The CCC Export Credit Guarantee Program (GSM-102/103) was also used to guarantee financing to that cannery.

The California Canning Peach Association is a grower cooperative which bargains with processors to obtain the best price and terms of delivery possible for its members. The bargaining cooperative gives growers more power in their dealings with canners, the only marketing outlet for their perishable crop. The bargaining cooperative and the canners negotiate for price and grading standards. This negotiation generally sets the field price for the season for all growers. Currently, the cooperative represents about 75 percent of total California cling peach production. A grower marketing order, the California Cling Peach Advisory Board, has assumed responsibility for various market development functions formerly carried out by a joint grower-processor order.

### **Consumption**

U.S. canned peach consumption fell from 4.13 pounds per capita in the late 1970s to 3.16 pounds per capita in the 1980s. In the 1990s, per capita consumption declined only slightly, to 2.94 pounds. The U.S. government buys canned peaches for schools, veterans hospitals, the military, and poverty programs, but they must purchase only U.S. products. Most of these purchases are made at the request of the institutions but the industry also approaches the government for additional purchases when prices are low, as was the case in crop years 1992 through 1994. Government purchases averaged 25.5 million pounds in crop years 1989 to 1991, 54.7 million pounds in 1992-94, and 25.9 million pounds in 1995-97. During the 1990's total government purchases averaged about 5 percent of domestic canned peach consumption, down from 6 percent in the late 1980s.

### **Carryover Stocks**

Since canned peaches are storable, stocks are important to understanding the industry. Between 1975 and 1997, carryover has ranged from 53 percent of the year's pack in 1983 to 6 percent in 1984. Average beginning stocks have declined 37 percent from the late 1970s to the 1990s. The 1998 season started with beginning carryover estimated to be 27 percent of the season's canned peach production, up 24 percent from the previous season.

### **Canned Peach Imports Grow**

Trade in canned peaches, either exports or imports, has never been very large. Imports were almost nonexistent before 1983 (see chart 8 and table 10). The 1983 U.S. cling peach harvest was disastrous and the pack was down 31 percent from the previous year. By the end of the season the carry-out level of stocks was down 80 percent from the previous year. With such short supplies, foreign suppliers were able to gain entry to the U.S. market.

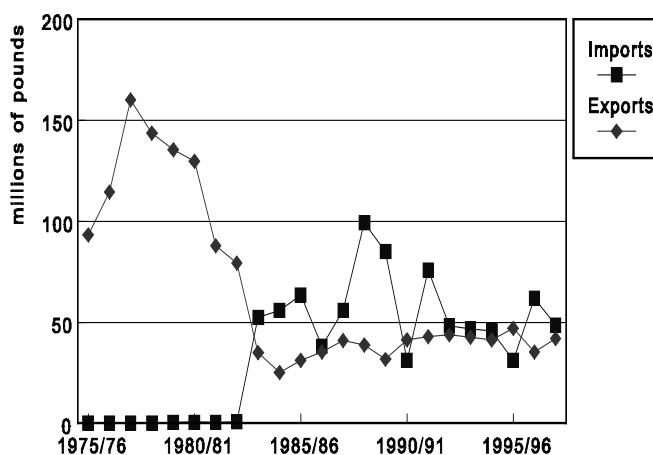
Initially, Spain was the major source of imports, but that quickly changed. In calendar year 1983, Spain accounted for 89 percent of U.S. imports. In 1984, South Africa had a 37-percent share of the market and Spain declined to 27 percent (chart 9). Argentina and Greece both had 12-percent shares. In 1986, Greece finally became the largest source of imports with a 50-percent share of U.S. imports. Greece has remained the largest supplier up to the present, with up to 88 percent of total U.S. imports. Due to poor weather conditions, the Greek harvest in 1997 was very low, about half of the level of the previous 2 years, and its share of U.S. imports fell to 41 percent.

In 1997, in addition to Greece and Spain, only South Africa, and Chile had more than a 1-percent share of U.S. imports. In the mid-1990s, South Africa's share of the U.S. market increased and was 13 percent in 1997. South African policy changes, particularly the devaluation of the Rand, made the South African product more price competitive. Chile's share has decreased from 26 percent in 1989 to just 5 percent in 1997. Australia, Argentina, and Mexico no longer supply significant volume to the United States.

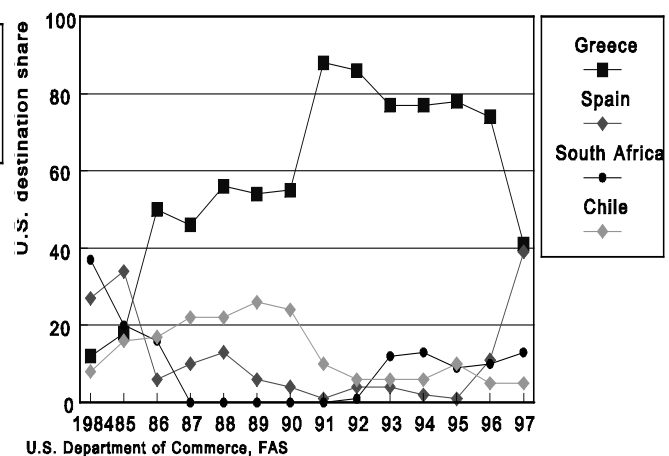
With subsidies, Greek canned peaches have very low average costs of production. A 1995 study found that including subsidies, Greece, South Africa, and Chile have the lowest costs of production; California, Australia, and Italy have medium costs of production; and Argentina and Spain have the highest costs of production (Lynch and Moulton). The U.S. industry believes that the quality of Greek peaches have improved over time and that the best Greek peaches are comparable to U.S. peaches.

Imports have been most important in the large institutional commercial pack sizes. Institutional buyers are thought to be more responsive to price and less loyal to brand, therefore, it is an easier market to break into than the retail market. Trade data (imports) by retail and institutional sizes are available only since 1989. From 1989-93, 71 percent of imports were in institutional sizes and the share increased to 85 percent from 1994-1997. In 1989, the last year domestic data were

**Chart 8: U.S. trade in canned peaches**



**Chart 9: Exporter share of U.S. market**



available, 66 percent of the California canned cling peach pack was in retail sizes and 34 percent in institutional sizes. Assuming that the share has remained the same over time, retail-sized imports from 1989/90 to 1997/98 have ranged from 1 to 6 percent of the volume of the domestic retail size pack. Imports of institutional sized cans over the same time period have ranged from 8 to 26 percent of the size of the domestic institutional size pack. The share of the U.S. supply packed in institutional sizes has probably declined marginally due to increased competition in that sector, which would indicate an even higher share of imports in the institutional size can market.

Table 11 shows U.S. import market shares for both the retail and institutional size imports. Greece dominates both groups. Spain is also an important supplier of retail canned peaches, and it had a larger market share than Greece in 1997 when Greece had low production. South Africa's presence in the retail-size imports has been variable ranging from 0 to 31 percent of U.S. imports over this period. For the institutional-size imports, Spain, South Africa, and Chile are also important suppliers. Chile's exports are nearly all in the institutional size now.

### **Export Markets Under Pressure from Foreign Competitors**

U.S. exports as a percent of domestic supply have declined from an average of 10 percent in the late 1970s, to 5 percent in the 1980s, to 4 percent in the 1990s. The competition that the United States now faces in its domestic market was first felt in traditional export markets beginning in the 1970s. The composition of U.S. canned peach exports has changed. As recently as the 1970s, Europe was still the most important U.S. export market with an average of 44 percent of U.S. exports. In the 1990s, exports to Europe averaged only 4 percent of total U.S. exports. The growth of the European canned peach industries, aided by canner subsidies and high tariffs, contributed to the decline of exports to that region. The U.S. firm, Del Monte, operated canneries in Greece and South Africa beginning in the 1960s which sold to the European market. The impact of this foreign direct investment on U.S. exports of canned peaches is uncertain, but probably displaced some U.S. exports. Nearly 10 years ago, Del Monte sold its foreign canneries and now produces canned peaches only in the United States. Those canneries, however, bought the right to use the Del Monte label in particular markets.

The United States exports canned peaches to many countries, but only a few currently account for even 5 percent of the export market (see table 12). In 1989, the biggest markets were Japan (51 percent), Taiwan (13), Canada (8), and Mexico (8). In 1997, the biggest markets were Mexico (40 percent, counting fresh cling peaches shipped to Mexico and canned there), Canada (20 percent), Japan (10), Russia (5), South Korea (5), and Taiwan (4). The growing markets are Mexico, Canada, Russia, and South Korea.



**Table 10 -- Total U.S. canned peach imports by calendar year and import share by country, 1980-1997**

Exporter Share		1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Greece	percent	0	0	0	1	12	18	50	46	56	54	55	88	86	77	77	78	74	41
South Africa	"	0	24	0	6	37	20	16	0	0	0	0	0	1	12	13	9	10	13
Chile	" 0	0	0	0	8	16	17	22	22	26	24	10	6	6	6	10	5	5	
Australia	"	0	0	0	0	0	3	0	15	2	0	0	0	0	0	0	0	0	0
Argentina	"	0	0	0	0	12	4	0	0	2	7	10	0	3	0	0	0	0	0
Spain	" 1	2	0	89	27	34	6	10	13	6	4	1	4	4	2	1	11	39	
Mexico	"	93	66	91	1	1	2	3	2	2	1	5	0	0	0	0	0	0	0
Other	" 6	9	9	2	4	4	8	4	3	5	1	1	1	2	1	2	1	2	
Total U.S. imports	mt tons	207	220	336	3,597	32,844	31,460	18,628	19,526	41,354	44,626	25,029	15,239	24,863	19,579	20,124	17,319	22,762	23,767

Source: U.S. Department of Commerce, FAS

**Table 11. U.S. imports and import share of retail size and institutional size canned peaches, 1989-1997 calendar years.**

Market export share		1989	1990	1991	1992	1993	1994	1995	1996	1997
<b>Retail imports</b>										
Spain	percent	6	8	0	4	3	3	5	18	67
China	"	0	0	0	0	0	1	11	3	5
Australia	"	0	0	0	0	0	0	0	0	0
South Africa	"	0	0	1	0	7	18	31	10	5
Greece	"	55	51	74	89	78	69	44	65	20
Argentina	"	5	13	0	3	0	0	0	0	0
Chile	"	27	28	23	3	10	4	8	1	0
Others	"	6	0	2	2	1	4	1	3	2
Total retail size imports	mt tons	13,384	8,197	2,012	9,160	5,857	3,116	1,607	3,613	4,679
<b>Institutional size imports</b>										
Greece	percent	54	57	90	84	76	79	82	75	46
Spain	"	7	3	1	3	4	2	0	9	33
Australia	"	0	0	0	0	0	0	0	0	0
South Africa	"	0	0	0	1	14	12	7	10	15
Chile	"	25	22	8	7	4	6	10	5	6
Argentina	"	8	9	0	3	0	0	0	0	0
Mexico	"	2	8	0	0	0	0	0	0	0
Others	"	4	2	1	1	2	1	1	0	1
Total institutional size imports	mt tons	31,242	16,833	13,226	15,703	13,722	17,008	15,711	19,149	19,088

Source: U.S. Department of Commerce

In 1992, the USDA provided \$1 million in Export Enhancement Program funds to bolster sales of canned peaches in Japan, Korea, and Mexico. This action came in response to 1991/92 EU violations of the Canned Fruit Accord. Only \$556,000 was used. The canned peach organization also benefits from the Market Access Program. In 1997, the California Cling Peach Growers Advisory Board received \$627,929 to finance generic promotional activities abroad.

Mexico is the largest market for U.S. cling peaches although only a small amount is shipped in canned form. The United States, however, is generally Mexico's second largest supplier of canned peaches after Greece (table 13). One exception was in 1997 when Greek production was very low and the United States provided the largest share of Mexican imports. The U.S. competitive position in Mexico should improve as Mexican tariffs on fresh peaches, as well as canned peaches, decline under NAFTA. Chile has developed into a more important supplier to Mexico, providing 31 percent of the Mexican imports in 1997 (Chile and Mexico have a free trade agreement).

In Canada, the United States lost market share years ago to competition from Australia, the EC, South Africa and others. The U.S. market share is increasing now, however, at the expense of Australia, probably due to the U.S.-Canadian free trade agreement which reduced tariffs to zero in 1998. In 1997, Canada was Australia's most important market followed by Japan and New Zealand. South Africa is also gaining market share again after a period of low exports to Canada.

Total Japanese canned peach imports trended up through 1995 and have fallen since then. In 1985, the largest source of Japanese imports was South Africa followed by Greece, Australia, and the United States. In 1997, China was the largest source of Japanese imports, although the canned peaches are probably the white varieties which Japanese consumers prefer. Greece (despite very low production in 1997) and South Africa both had market shares of 22 percent in 1997. The Australian share of the market declined to a low of 2 percent in 1997. The U.S. share of the market declined from a high of 32 percent in 1986 to a low of 4 percent in 1997. Chile's share in 1997 was slightly larger than that of the United States. The United States faces a strong dollar and aggressive competition in this market from China, Greece, and South Africa.

### **Calculating a Producer Subsidy Equivalent (PSE) for U.S. Cling Peaches**

For this analysis, two PSEs were calculated, one measuring the level of support for canning peach producers (growers) and one measuring support for canned peach processors. See Appendix I for detailed sources and methods for the U.S. PSE calculation.

**Table 12--U.S. canned peach exports, calendar years 1989-1997**

Destination	1989	1990	1991	1992	1993	1994	1995	1996	1997
Metric Tons									
Canada	1,273	1,490	2,313	2,363	3,003	3,182	5,072	4,725	5,901
Mexico 1/	1,218	1,095	859	4,056	3,458	9,030	10,026	7,809	11,808
Taiwan	2,095	0	2,845	2,373	1,962	1,559	1,553	1,427	1,309
Japan	8,052	5,912	8,008	6,415	5,881	4,837	4,978	2,955	2,910
Russia	0	0	0	0	41	62	153	426	1,389
S Korea	18	87	18	30	613	1,376	2,721	1,880	1,373
Greece	221	1,496	0	0	0	72	163	0	0
Singapore	377	961	704	630	1,249	889	1,200	985	385
Hongkong	364	842	1,696	1,798	1,633	1,169	910	890	475
Philippines	609	520	525	759	411	842	615	648	196
Others	1,663	3,953	2,748	2,965	4,005	3,109	3,877	2,724	3,654
World	15,890	16,355	19,717	21,390	22,255	26,126	31,267	24,468	29,400

1/ Data on fresh cling peaches shipped to Mexico for canning are added to regular canned peach export data

Source: U.S. Department of Commerce

**Table 13-- Canned peach imports by country for Mexico, Canada, and Japan, calendar years 1985-1997**

Sources of Inputs	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
<hr/>													
Mexican canned peach imports 1/													
Greece	3,715	6,937	9,372	0	260	2,547	5,027	19,185	20,969	21,267	9,133	9,619	4,674
United States	5	34	36	96	1,404	2,988	820	4,759	3,977	10,898	11,282	8,175	11,793
Chile	0	0	0	785	849	516	2,175	4,039	5,122	4,608	4,607	8,858	
Argentina	0	0	0	0	2,340	10,059	0	1,259	248	733	814	7	1
Spain	0	0	0	0	198	678	74	133	1,016	1,519	736	263	2,856
Others	0	0	0	0	90	174	1	129	190	316	343	6	91
TOTAL	3,715	6,971	9,408	96	5,077	17,295	6,438	27,640	30,439	39,855	26,916	22,677	28,273
<hr/>													
Canadian canned peach imports													
Greece	6,367	8,437	8,119	10,158	9,512	8,775	6,661	8,769	11,180	11,676	7,581	7,633	7,853
South Africa	2,901	4,638	0	0	0	0	0	0	182	1,010	1,186	1,056	1,473
United States	3,715	3,353	2,743	2,268	1,478	1,102	2,003	2,129	2,887	3,061	5,048	4,753	5,920
Australia	5,157	5,483	8,367	8,549	5,084	4,955	5,441	4,042	3,963	3,316	3,380	2,275	2,327
Chile	461	238	986	1,737	1,092	795	1,161	424	484	602	528	441	559
Others	1,974	1,814	1,846	2,455	2,694	1,462	2,721	2,504	1,185	1,306	1,161	2,207	3,386
TOTAL	20,575	23,963	22,061	25,167	19,860	17,089	17,987	17,868	19,881	20,971	18,884	18,365	21,518
<hr/>													
Japanese canned peach imports													
United States	2,934	12,187	9,158	11,214	8,350	5,851	7,988	6,391	7,016	5,042	4,895	3,136	2,708
Greece	3,369	5,942	6,763	11,200	15,241	10,076	10,657	14,172	16,088	24,889	21,580	16,039	14,236
South Africa	6,563	15,390	15,044	13,749	12,941	10,350	11,937	12,066	11,885	13,896	14,179	12,860	14,185
China	0	13	77	361	726	1,958	6,719	4,145	13,289	23,959	36,161	26,716	28,068
Chile	0	907	1,002	1,320	2,636	2,839	5,210	5,522	3,321	3,149	3,361	2,768	2,878
Australia	3,016	3,891	5,890	6,302	3,834	4,148	5,144	3,561	2,772	2,340	2,404	2,041	1,605
Korea	342	127	1,838	2,257	3,146	2,233	2,498	449	590	437	702	617	395
Others	0	53	94	223	210	137	101	449	631	1,679	1,128	734	577
TOTAL	16,224	38,510	39,866	46,626	47,084	37,592	50,254	46,755	55,592	75,393	84,410	64,911	64,652

1/ Data on Mexican canned imports from the U.S. is augmented with data on fresh cling peaches exported to Mexico for processing there.

Source: For Mexico, U.S. export data for 1985-87 and SECOFI import data for 1988-1997. For Canada data use Tiers Database, Statistics Canada.

For Japan data use Customs Bureau, Ministry of Finance, Japan.

**Table 14 -- Total Producer Subsidy Equivalent for U.S. Cling Peaches**

<b>Year</b>	<b>Fresh</b>	<b>Canned</b>
<b>(Percent of Production Value)</b>		
1992	7.3	17.3
1993	7.1	17.1
1994	7.1	16.6
1995	7.7	16.2
1996	6.5	16.6
1997	5.2	16.2

**Fresh cling peaches**

Cling peach growers receive support directly through crop insurance subsidies, and indirectly through general government services and irrigation assistance. Between 1992 and 1997, these forms of assistance amounted to a combined Producer Subsidy Equivalent of 5 to 8 percent, i.e., equivalent to 5 to 8 percent of the value of cling peach production came from some type of government program or policy (table 14).

The U.S. government subsidizes crop insurance premiums for peach growers (table 15). Net indemnities (the amount of government assistance to cling peach growers) can be defined as the sum of gross indemnities and subsidies minus premiums paid. During 1992-97, net indemnities amounted to a PSE component ranging between -0.2 percent and 0.9 percent.

General government services are calculated at the State (California) and Federal levels, and are pro-rated to cling peach production. Included in federal general government services are credit assistance for operating expenses and real estate, research, advisory services, processing and marketing assistance, pest and disease control, as well as tax expenditures and Federal land improvement expenditures. All California state expenditures on agriculture are included as a basis for the pro rata calculation. During the period of study, general government services amounted to a PSE component ranging between 5 to 7 percent.

The Bureau of Reclamation's program for water irrigation in 17 Western States supplies a number of regions in California where cling peach groves are concentrated. These projects assist irrigators in the construction and maintenance of regional networks. However, at an estimated \$60 per acre and a PSE component averaging 0.2 percent, the amount of assistance provided to cling peaches is negligible

**Table 15**  
**Producer Subsidy Equivalents (PSE) for Cling Peaches**  
**United States, 1992-1997 1/**

U.S. PSE (Grower)		1992	1993	1994	1995	1996	1997
CY							
		<i>1,000 USD</i>					
	<i>Price intervention</i>	0	0	0	0	0	0
(1)	Total (Market Price Support)	0	0	0	0	0	0
	<i>Crop insurance net benefits</i>	-185	-167	-39	751	-109	49
	<i>Irrigation subsidies</i>	73	75	65	58	76	95
(2)	Total (Inputs Assistance)	-112	-92	26	809	-33	144
	<i>Federal and state government general services</i>	8892	8172	6937	5955	7505	7338
(3)	Total (Infrastructure Support)	8892	8172	6937	5955	7505	7338
(4) = (1)+(2)+(3)	Total Value of Government Support	8780	8080	6963	6764	7472	7481
(5)	Value of Production	120636	113033	97470	87847	114510	143000
= (4) / (5)	<b>PSE (Grower)</b>	<b>7.3%</b>	<b>7.1%</b>	<b>7.1%</b>	<b>7.7%</b>	<b>6.5%</b>	<b>5.2%</b>
U.S. PSE (Processor)		1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
MY (June-May)							
		<i>1,000 USD</i>					
	<i>Price intervention</i>	60587	66407	56418	58676	44263	59714
(1)	Total (Market Price Support)	60587	66407	56418	58676	44263	59714
	<i>Market Access Program (MAP) allocations (FY)</i>	2350	1620	1090	780	630	727
(2)	Total (Marketing Assistance)	2350	1620	1090	780	630	727
(3) = (1)+(2)	Total Value of Government Support	62937	68027	57508	59456	44893	60441
(4)	Value of Production	363522	398440	345742	367499	271250	374000
= (3) / (4)	<b>PSE (Processor)</b>	<b>17.3%</b>	<b>17.1%</b>	<b>16.6%</b>	<b>16.2%</b>	<b>16.6%</b>	<b>16.2%</b>

1/ Calculations are based on California production, which represents 98 percent of the canned peach pack.

**Sources:**

Bureau of Reclamation, Department of Interior. California Cling Peach Advisory Board. ERS / RED / FSB. Federal Crop Insurance Corporation, Crop Year Statistics, Nationwide Summary By Crop. Tennessee Valley Authority. UNCTAD TRAINS database. USDA Extension Service. USDA / AMS / Office of Transportation. USDA / Farmers Home Administration. USDA / FAS. USDA / FAS PS&D database. USDA / Natural Resource and Conservation Service. USDA / Office of International Cooperation and Development. USDA / Risk Management Agency.

## **Processed (canned) peaches**

U.S. peach canners received transfers from consumers and taxpayers through price intervention and federal Marketing Assistance Program (MAP) allocations, which formed a combined PSE of 16 to 17 percent during 1992-97.

Price intervention formed the largest PSE component (roughly 16 percent) for U.S. peach canners. This was effected through a 19-20 percent tariff on imports. According to its WTO commitments, the U.S. will lower its tariff on canned peaches to 17 percent by 2000.

The U.S. Government does purchase canned peaches under the School Lunch and military procurement programs. However, no methodological justification exists to include these government purchases as part of the PSE for canned peaches. This is because the 19-20 percent tariff on imports during the 1992-97 period fully reflects the market price support received by U.S. peach canners. Though they are "Buy America" programs, government purchases of canned peaches did not have the effect of increasing price intervention above the level of the import tariff. As an illustration, supposing that government purchases of canned peaches were temporarily to raise the U.S. market price above the tariff-inclusive import price, arbitrage on world markets would soon increase U.S. imports and bring the U.S. market price back to the world price plus tariff. This approach is supported by the methodology used to calculate U.S. PSEs for dairy products. Though the U.S. government purchases and stockpiles dairy products at an applied administered price, these measures are captured as part of the observed price wedge between U.S. and world prices.

USDA Market Access Program (MAP) allocations to the California Cling Peach Growers Advisory Board were small compared to the value of canned peach production, with PSE components ranging between 0.2 and 0.6 percent.

## **Impact of Market Changes on Prices**

Canned peach prices have trended downward over time (table 16 and appendix table II-3). The change in price could potentially be attributed to many factors including declining domestic consumer demand, small changes in technical efficiency, declining exports, increasing imports, changes in market power, and declining tariff protection. Between 1983-89 and 1990-97, real average grower prices (using the consumer price index for processed fruit with 1997=100 as the deflator) fell a total of 8 percent, as did the real average canner f.o.b. prices for institutional sizes.

Canner f.o.b. prices are similar to list prices but actual transactions prices can vary, usually in a downward direction. Data on actual USDA purchases of canned peaches shows that the price fell by 8 percent over this time period. However, the government purchase price ranged from 100 percent of the institutional size canner f.o.b. price in 1990 to 75 percent in 1997. Canner f.o.b. prices for retail size cans declined 12 percent from 1983-89 to 1990-97, but the data do not appear to be very reliable. The canner f.o.b. data show a higher price for an institutional case than for a retail case from 1995/96 to 1997/98, which seems very unlikely. Real canned peach import prices (customs value which is the value without shipping, insurance, or tariff costs) declined 16



percent. U.S. industry analysts contend that the fall in canned prices led to canner exit from the industry. The U.S. tariff on canned peaches is also declining 15 percent over a 6-year period, from a 20 percent ad valorem tariff to a 17 percent ad valorem tariff, beginning in 1995, in accordance with WTO commitments. This change in tariff will further increase the competition from imports.

Between 1989/90-93/94 and 1994/95-97/98, the real landed price (customs value plus shipping, insurance, and tariff) of Greek canned peaches in the United States declined a total of 12 percent for the retail sized cans, and 2 percent for the institutional sized cans. A comparison of real landed Greek prices with U.S. f.o.b. prices shows that from 1989/90 to 1997/98, the Greek prices averaged 14 percent less than the U.S. prices for retail sized cans, and 21 percent less for the institutional sized cans (12 percent if comparing USDA purchase price with Greek landed prices). The larger price differential for institutional sizes, when using the canner f.o.b. prices, explains the greater import penetration in the institutional market than the retail market. Since U.S. f.o.b. prices are for California canneries and imports are assumed to arrive in east coast ports, adding the California-to-East Coast transportation costs increases the estimated price gap. For 1997/98, the price gap was 24 percent without the transportation costs, and 29 percent with transportation costs.

Information on changes in the processor margin are also presented in table 16. With so few processors there is always concern about oligopsony power in purchasing the raw product from growers and oligopoly power in selling. French and King (1986) found evidence supporting their hypothesis of imperfect competition in marketing canned peaches in their research covering pricing behavior from 1956 to 1984, a time period with virtually no imports. In 1984, there were 8 canners in the United States. Canners were viewed as price setters, that set a price, sell as much as possible at that price, and carry the balance to the next year as stocks. National brand canners were believed to be price leaders. French and King found that canner f.o.b. prices closely followed changes in production and raw product costs. Although there are even fewer canners now, maintaining oligopoly power would be much more difficult in an industry facing strong price competition from imports. Price information contained in table 16 allows a calculation of processor margins (canned peach f.o.b. price minus peach grower price). Processor margins for institutional sized cans peaked in 1984/85, the first season with substantial imports, and has generally declined since then. The processing margin for retail size cans peaked a few years later, in 1986/87, and has generally declined since then. Between 1981-89 and 1990-97, the processor margin declined 10 percent for the retail size pack and 4 percent for the institutional size pack. Increasing price competition from lower-priced imports has put downward pressure on U.S. canned peach prices and, thus, on processor margins. In a 1995 study of U.S. competition with Chile in the canned peach market, Moulton concluded, "The ability of the U.S. industry (canned peach) to sustain further price reductions is limited."

Moulton and Liu (1990) estimated import demand elasticity with respect to import price of -2.94 and with respect to domestic price of 3.80. So, a 1-percent decrease in the import price will lead to a 2.94-increase in import volume or a 1-percent increase in domestic price leads to a 3.80-percent increase in imports. Final consumer demand is relatively price inelastic. Estimates of domestic price elasticity range from -.62 to -.74, so when prices decline due to increased imports,

consumer demand expands less than proportionately (Moulton, French and King (1988)). With lower import prices, a larger share of the relatively constant U.S. domestic market shifts to importers, i.e., imports replace domestic supplies. This study did not attempt to measure the economic impact on the U.S. canned peach industry of increases in imports. However, in an earlier study on canned peach competition with Chile, Moulton (1995) estimated that, if increased imports displaced 625,000 cases of canned peaches (at the time, roughly equivalent to a 50-percent increase in imports in response to a favorable import-to-domestic price relationship), domestic processors revenues would decline by \$10 million. Increased imports of this magnitude represent 56 percent of 1997/98 canned peach imports. Further, Moulton estimates, such an increase would create a loss of 55 to 65 full-time equivalent jobs in the processing industry, a loss of 69 jobs in ancillary and supplier industries, and an overall loss of \$6.4 million in value added across several industries.

Table 16. Real U.S. Cling Peach Grower Prices, Canner f.o.b. Prices, Processor Margins, and Import Prices, 1975/76-1997/98 1/

Season	grower price/case equivalent (24 #2.5 cans) 2/	grower price/case equivalent (6 #10 cans) 3/	canner f.o.b. price/case (24 #2.5 cans) 4/	canner f.o.b. price/case (6 #10 cans) 5/	processor margin (24 #24 cans) 6/	processor margins (6 #10 cans) 6/	US Import price/mt 7/	Greek landed price/mt (cans less than 1.4 kilograms) 8/	Greek landed price/mt (cans equal to or greater than 1.4 kilograms) 8/	Greek landed price/case equivalent (24 #2.5 cans) 9/	Greek landed price/case equivalent (6 #10 cans) 10/	Difference between Greek and U.S. prices as a percent of U.S. (24 #2.5 cans)	Difference between Greek and US prices as a percent of U.S. price (6 #10 cans)
1975/76	5.24	5.35	22.12			17.28							
1976/77	5.23	4.78	24.00			18.77							
1977/78	4.98	4.56	22.74			17.76							
1978/79	5.34	4.88	24.24			18.90							
1979/80	5.24	4.80	23.27			18.03							
1980/81	5.12	4.69	23.64			18.51	939.33						
1981/82	5.28	4.83	22.45	20.16	17.17	15.33	600.09						
1982/83	4.81	4.40	21.89	19.58	17.08	15.18	617.33						
1983/84	4.08	3.73	24.55	23.73	20.47	20.00	927.54						
1984/85	4.69	4.29	24.82	24.51	20.13	20.22	863.38						
1985/86	4.63	4.24	23.85	21.73	19.22	17.49	751.72						
1986/87	4.28	3.91	25.30	21.76	21.02	17.85	735.68						
1987/88	4.74	4.34	24.74	22.58	20.00	18.24	875.38						
1988/89	4.72	4.32	23.37	21.74	18.65	17.43	790.09						
1989/90	4.66	4.27	22.35	20.76	17.69	16.50	757.03	1 070.56	987.01	21.12	18.13	-0.05	-0.13
1990/91	4.31	3.94	20.42	17.88	16.12	13.94	634.62	888.44	826.77	17.53	15.19	-0.14	-0.15
1991/92	4.58	4.19	22.80	20.60	18.22	16.41	707.06	926.58	930.98	18.28	17.10	-0.20	-0.17
1992/93	4.30	3.94	21.81	20.22	17.51	16.28	741.12	1 114.86	881.36	22.00	16.19	0.01	-0.20
1993/94	4.58	4.19	21.62	21.22	17.04	17.04	631.67	902.25	857.71	17.80	15.76	-0.18	-0.26
1994/95	3.78	3.46	21.61	20.90	17.83	17.44	652.97	910.48	834.54	17.97	15.33	-0.17	-0.27
1995/96	4.21	3.85	20.76	21.45	16.55	17.59	742.09	1 014.12	936.90	20.01	17.19	-0.04	-0.20
1996/97	3.71	3.40	20.78	22.86	17.07	19.46	680.88	781.60	887.74	15.42	16.28	-0.26	-0.29
1997/98	3.96	3.63	20.09	20.53	16.13	16.90	679.06	741.04	851.33	14.62	15.59	-0.27	-0.24

1/ All price data is expressed in real terms with the consumer price index for processed fruit from the ERS Fruit and Tree Nuts Situation and Outlook Report Yearbook Issue with 1997 equal to 100). The Index is on a calendar year basis. The index for 1997 is used with crop year data for 1997/98. Original data appears in Appendix Table 11-1.

2/ Data on grower price per ton is from the California Canning Peach Association. Assuming 36.36 pounds of farm weight per case of 24 # 2.5s.

3/ Data on grower price per ton is from the California Canning Peach Association. Assuming 33.28 pounds of farm weight per case of 6 # 10s.

4/ California Canning Peach Association data for 1975-80. Other data from the Food Institute.

5/ Food Institute data.

6/ Processor margin is canner f.o.b price minus grower price equivalent.

7/ Customs value (value of product without including tariff, shipping, and insurance charges. Data from FAS.

8/ Data from U.S. Department of Commerce. Landed price is customs value plus tariff plus shipping and insurance charges.

9/ Assuming that 1 metric ton of product weight equals 50.68 cases of 24 #2.5s and a case weigh 43.4 pounds product weights. FAS assumes 48.99 cases of 24 #2.5 per metric ton of product weight.

10/ Assuming that 1 metric ton of product weight equals 54.44 cases of 6 #10s and each case weighs 40.5 pounds product weight.

Source: California Canning Peach Association, U.S. Department of Commerce, ERS, FAS, and the Food Institute.

## Economics of Changing U.S. Import Prices for Canned Peaches

A simple regression model was used to estimate the impact that the Greek peach industry has had on the U.S. import price of canned peaches. Greek subsidies, the drachma-dollar exchange rate, and global production are believed to affect U.S. prices.

We hypothesized that both Greek subsidies and world production lower the U.S. canned peach import price. We also hypothesized that the U.S. import unit value of canned peaches falls as the Greek exchange rate depreciates in value relative to the U.S. dollar.

The following econometric model was specified:

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where:

$P_m$  = U.S. import unit value of canned peaches expressed in 1997 real terms,

$Q_1$  = lagged world production of canned peaches,

$E$  = the drachma/dollar exchange rate,

$W_s$  = Greek withdrawal expenditures per metric ton of harvested peaches expressed in 1997 real terms,

$P_a$  = Greek processor aid per metric ton of canned peaches, and

$e$  = error term.

See, Appendix Table II-2 for data and complete variable definitions.

The ordinary least squares (OLS) procedure was employed in the estimation using annual data between 1983 and 1997.

The empirical results were as follows:

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(2.47)	(-0.95)	(-1.66)	(-0.87)	(-0.26)
Adjusted $R^2 = .576$	$n = 15$	$DW = 1.91$		

All of the estimated coefficients were of the hypothesized sign. The Durbin-Watson statistic did not indicate a problem with serial correlation. The adjusted  $R^2$  is .58, a not unreasonable result given data availability limitations which prevented differences in production costs and other exporter's influences on the U.S. import price from being included in the estimating equation. None of the individual  $t$ -values were, however, statistically significant. This is partially explained by the existence of multicollinearity, revealed by variance-inflation factors exceeding 5 for both the Greek processing subsidy and the drachma-dollar exchange rate. Multicollinearity, which increases variances and lowers the calculated  $t$ -values, can mislead analysts about the significance of statistical findings. But, its presence does not bias the estimated coefficients.

In an attempt to circumvent the problem of multicollinearity, we re-estimated the equation, dropping the processor subsidy. The following results were obtained:

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$$(3.60) \quad (-0.97) \quad (-1.90) \quad (-0.92)$$

$$\text{Adjusted } R^2 = .612 \quad n = 15 \quad DW = 1.85$$

The magnitude of the estimated parameters in the second regression are quite similar to what was obtained in the first. In the re-estimated equation, the exchange-rate variable becomes statistically significant at the 10 percent level and the adjusted  $R^2$  increases to .61.

We draw the following inferences from our empirical results:

- ▶ The U.S. import price for canned peaches falls between a .24 and .27 percentage point for each percent that the U.S. dollar gains in value relative to the Greek drachma. This is understandable given that the dollar price of Greek peaches falls whenever the U.S. dollar appreciates relative to the drachma. Greece is the dominant supplier of canned peaches to the United States as well as to the rest of the world. As a result of lower dollar price for Greek peaches, other exporters are induced to lower their price in order to remain competitive.
- ▶ The negative coefficients obtained for the Greek subsidy variables indicate that withdrawal expenditures and processor aid put downward pressure on U.S. import prices for canned peaches. However, the small size of the coefficients and the lack of statistical significance suggests that the levels of these "official" subsidies do not materially affect the U.S. import price.
- ▶ The empirical results suggest that a one percent increase in global production lowers the U.S. import price between 0.26 and 0.29 of a percentage point. The absence of statistical significance does not inspire confidence in these estimates.

#### IV.

#### THE CANNED FRUIT ACCORD

In 1981, two years after the EU initiated the original canned fruit regime, the United States complained that such subsidies violated the EU's commitments to reduce canned fruit subsidies during the most recent round of GATT negotiations. After threatening the EU with unilateral action under Section 301, the United States brought its case to a GATT panel, which concluded in favor of the United States. In 1985, the EU agreed to a bilateral agreement, the Canned Fruit Accord (CFA), to limit the amount of processing aid to canned peach producers granted by the EU. Since the original agreement in 1985, the CFA has been amended twice, once in 1989 and once in 1992. These amendments were not meant to change the impetus behind the original CFA, but rather to clarify measurements of EU compliance with the accord.

The basic formula of compliance (as spelled out in an exchange of letters between EU Agriculture Commissioner, Ray MacShary, and the United States Trade Representative, Carla Hills) remains quite simple. EU processing aid (PA) shall be no greater than the difference between the World Price (WP), largely calculated by the United States (based on price information from other major non-EU exporters), and the Minimum Grower Price (MGP), entirely calculated by the EU. EU compliance with the CFA is proven by showing that the difference between the MGP and the PA is greater than or equal to the calculated world price. The EU provides payments to peach processors, as well as all agricultural payments, in "green" ecus. Green ECUS differ in value somewhat from the budgetary ECUS used for non-agriculture government outlays. Prior to 1994, there were two internal green ECU exchange rates and a Monetary Differential Amount (MDA) formula to adjust for the gap between the green rates and the budgetary ECU rate. The MDA formula would ensure, at least theoretically, that exchange rate fluctuations of the ECU would not alter EU compliance with the CFA. However, the EU has abolished use of this formula in favor of using only one green rate.

The method of calculation of the CFA world price is based on prices for fresh peaches destined for canners in four exporters--United States, Australia, Chile, and South Africa. Table 17 provides an indication of the level of fresh canning peach prices in the four exporting countries. The "world price" is calculated as a trade-weighted (exports) average of the prices in the four countries. In most years, the CFA world price is below prices in the two "higher-cost" countries--the United States and Australia. Since the CFA requires that the EU keep its processing aid at or below the difference between the MGP and the CFA calculated world price, the level of the processing aid (if it is actually at, or near, the difference) would appear to always disadvantage U.S. processors--in the U.S. market and in other export markets.

**Table 17 -- Calculation of the CFA World Price for Processing Peaches**

Year	Prices for Fresh Peaches for Processing				CFA Price
	United States	Australia	South Africa	Chile	
-----\$US per metric ton-----					
1987	213.00	215.00	155.00	199.00	183.00
1988	234.00	219.00	151.00	191.00	182.00
1989	232.00	288.00	179.00	163.00	180.00
1990	NA	NA	NA	NA	201.81
1991	250.20	255.04	225.20	250.20	234.81
1992	248.02	334.59	233.20	295.85	267.74
1993	254.00	195.00	119.00	356.00	231.45
1994	237.00	336.00	174.00	200.00	209.03
1995	234.79	329.44	186.46	168.20	218.48
1996	234.79	355.39	207.32	180.00	204.48
1997	220.46	357.98	174.06	195.00	199.84

NA--Not Available.

Source: Calculated by USDA/FAS from country submissions.

## **V.**

## **SUMMARY AND CONCLUSIONS**

The European Union (EU) Common Market Organization (CMO) for Fruits, which provides subsidies to Greek and other EU peach growers and processors has greatly altered the global competitive playing field for canned peaches. Greece now holds a 60-percent share of canned peach exports, up from just 11 percent in the early 1970s. The United States, on the other hand, has moved from a 23-percent share of the export market in the early 1970s, to a 4-percent share today, and, in most years since the mid-1980s, has been a net importer of canned peaches. The purpose of this study was to identify and analyze the factors underlying this reversal of trade patterns between the EU/Greece and the United States, and to assess the relative role of government support in the reversal.

### **EU Maintains Significantly Greater Government Support for Peach Growers**

The level of government support for canning-type peach growers in the EU, generally, and Greece in particular, is on the order of 10 to 15 times that for U.S. clingstone peach growers. The calculated level of government support for EU/Greece peach growers as a percentage of the total value of peach production is in the range of 71 to 79 percent over the 1990 to 1995 period, i.e., the value of support to Greek peach growers from EU programs and policies is equivalent to 71-79 percent of the value of peach production. For the United States, the calculated level of government support as a percentage of the value of clingstone peach production was in the range of 5 to 8 percent over the 1992 to 1997 period.

### **EU Support Insures Ample Supplies of Canning Peaches for Processors**

The exceptionally high level of EU support for peach growers would appear to be at the root of the rapid increase in Greek peach production following Greece's accession to the European Union in 1980. The support provided under the EU's CMO for Fruit, as implemented in Greece, virtually guaranteed an unconstrained supply of peaches for Greek processors.

### **Potential for Abuse of the Common Organization for Fruit--Added Subsidies**

A university study, an EU Court of Auditors Report, and the analysis of the production and disposition of peaches in Greece in this study, point to significant potential for abuse of the EU Withdrawal System, a program that pays producers to "withdraw" fruit from the market (fresh and canning markets). The analysis conducted in this study suggests that abuse of the withdrawal system could have increased the calculated level of support for Greek peach growers by as much as 20 percent in some years. Greek peach processors could also benefit from abuse of the EU CMO for Fruit. Estimating the added (hidden) level of support for processors through abuse of the CMO is more problematic than that for peach growers. Estimates range from 0 to a 50-percent increase in the calculated level of support from government (EU) programs, depending on the degree to which the processors might have benefited from growers' abuse of the withdrawal system by being able to pay lower prices.



Abuse of the EU CMO for peaches (the withdrawal system as well as processing aid), and the potential it held for transmitting added support to Greek growers and processors during the 1990s, was likely at least as important as the basic CMO itself in explaining the changing competitive situation in the canned peach market.

### **EU Reforms to the Common Organization for Fruit--How Significant?**

The EU has announced and begun to implement reforms to the structure and the basic operating mechanisms of the CMO for Fruit. Just how significant the reforms will be is difficult to fully assess. However, it appears that the reforms, which will severely limit the quantities that can be withdrawn from the market and reduce the price paid for withdrawn fruit, will make it much more difficult for growers and/or processors to abuse the Common Market Organization.

The reforms, if carried to their fullest extent, would significantly reduce the levels of government (EU) support to growers. Greek peach growers could be particularly hard hit, since, in some years, as much as 60 percent of the Greek peach crop was placed under the Withdrawal System. As an indication of the potential impact, the EU and Greece have established a program to uproot 15,000 hectares of peach trees over a 5-year period, equivalent to about 25 percent of Greece's productive peach acreage.

### **U.S. as a Net Importer of Canned Peaches--Implications for the Domestic Canned Peach Industry**

U.S. peach processing margins have declined in real terms from the 1980s, under pressure from lower priced imports. Increased import penetration and declining exports since the mid-1980s, have forced a major contraction in the industry. In 1984, there were 8 peach canners in the United States. By 1998, 4 peach canners remained.

Much of the decline in import unit values for canned peaches entering the United States can be explained by changes in the Greek Drachma/\$U.S. exchange rate. EU/Greek subsidies were found to have a relatively small impact on U.S. import unit values compared to the exchange rate effects.

### **The Canned Fruit Agreement--Not Beneficial to High-Cost Peach Producers**

The Canned Fruit Agreement (CFA) has probably helped to limit the size of the EU processing aid/subsidy provided to processors to compensate for having to pay EU growers a high minimum grower price (MGP). By limiting the processing aid to no more than the difference between the high MGP and a calculated world price for fresh peaches for canning, the CFA has placed some bounds on potential "overcompensation" of EU and Greek peach processors through the processing aid subsidy. However, by calculating a world fresh canning peach price using an export-weighted average of fresh canning peach prices in the four largest non-EU exporters (United States, Australia, South Africa, and Chile), the potential compensation to EU processors will, in most years, disadvantage the higher cost fresh peach producers--normally, the United States and Australia.

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## **APPENDIX I. GOVERNMENT SUPPORT FOR THE CANNED PEACH SECTOR**

### **Calculating a Producer Subsidy Equivalent**

A Producer Subsidy Equivalent (PSE) is an aggregate measure of support that summarizes the effects of a variety of government programs in a single number. A PSE is a simple measure, but is particularly valuable for studying the extent of government intervention in particular agricultural markets. A PSE is a comparison of two states: the current state with government intervention and a hypothetical state without government intervention. Government intervention is considered to be any set of policies or programs that affects production. The most common interpretation of the PSE is that it represents the lump sum compensation that would be required to maintain producer income if government policies and programs that affect agricultural markets were eliminated, assuming constant world prices and fixed output. Government policies considered in the PSE calculation are generally classified into six categories. The policy categories are:

*Market Price Support/Price Intervention:* These policies include various forms of government intervention that alter prices at one or more links in the marketing chain. Within this category could be domestic policies which require purchasing commodities at prices that are above world market prices. Or, border policies such as tariffs which help to raise domestic prices above world levels.

*Income Support/Direct Payments:* Policies in this category include direct or indirect cash transfers between the government and the producer. Usually the purpose of the policies in this category is to increase producers' income, or to offset the taxing effects of other policies or programs.

*Input Assistance:* These policies implicitly or explicitly tax or subsidize the use of purchased inputs used in the production process. Examples are: fertilizer subsidies, credit subsidies, agricultural insurance subsidies, or irrigation water subsidies.

*Marketing Assistance:* Programs in this category change marketing or processing costs, or influence food consumption or the non-food uses of agricultural products.

*Infrastructure Support/Public Sector Services:* This category includes policies that affect farm structure, producer knowledge and productivity, or agricultural infrastructure over the long term. Examples might include: research, extension, and education; provision of marketing, grading and inspection; and assistance for land improvements.

*Other Federal and Regional Support:* Programs in this category include those administered by State, or (in the case of the EU) national, governments that transfer resources to, or from producers. Estimates for State programs within the United States are available, but no reliable information is available on National Government programs within the EU.

The value of the level of government support (subsidy) for each policy or program is calculated and then summed to obtain the value of government support provided to producers of a particular commodity. For non-product specific policies and support, the value of support is prorated across commodities on the basis of the value of the commodity's production relative to total value of agricultural production. The PSE is expressed as a value, the value of government support, and as a percentage PSE, the value PSE divided by the value of production. The Percentage PSE for a commodity or product measures the subsidies that government policies provide for the production of a product per unit of output (sales or production value).

A more detailed explanation of the PSE calculation can be found in a paper by Roberts and Johnson<sup>6</sup>.

### **Notes on Sources and Methodology for Calculation of the EU PSE**

The Producer Subsidy Equivalent (PSE) for the European Union (EU) was calculated from data for the 15 member countries of the European Community, or EU-15 (Appendix Table I-1). The majority of canned peach processing (over 65 percent) occurs in Greece, while fresh peach production mostly occurs in Greece, Italy, and Spain. The EU PSE calculations were made at both the peach grower and the peach processor levels. However, since peaches grown in the EU can be sold to either the fresh or processing markets, data were used only for fresh peaches that are used for processing into the canned product, or disposed of under the EU withdrawal program.

*Market Price Support (MPS).* Production Aid and Withdrawal subsidies are paid by the European Commission and are managed by Community Marketing Organizations (CMOs) for fresh and for processed fruits and vegetables. Both types of subsidies were treated as budget outlays in the PSE calculation. Production Aid data are published in *The Agricultural Situation in the European Union* under the chapter on "Prices and Production Costs." Data on withdrawal subsidies were provided by the USDA-FAS, as submitted by the EU in response to a request by the G-6 countries.

*Marketing Assistance (MA).* Appropriations for Promotion Measures are listed in the Budget of the European Communities and are intended to cover expenditures on promoting products which come under Regulation (EEC) No 1035/72, other than nuts. Appropriations are pro-rated for the amount of peach production that goes to processing or is submitted for withdrawal. No data are available for Tree-Pull or Grubbing-Up programs between 1989 and 1995 because such programs were not started until FY96. Such programs offer a 5,000 ecu payment to growers for every hectare of land removed from peach production.

*Infrastructure Support (IS).* Infrastructure support included general non-commodity-specific agricultural expenditures by the EU. Such data were submitted by the EU and are listed on tables

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<sup>6</sup> Roberts, D., and M. Johnson, *Estimates of Producer and Consumer Subsidy Equivalents: Government Intervention in Agriculture, 1982-92*, Statistical Bulletin No. 913, Economic Research Service, USDA, December 1994.

of domestic support measures for the European Community, provided by the World Trade Organization (WTO). Expenditures include research, pest and disease control, extension and advisory services, and infrastructure services. Once again, expenditures were pro-rated for peaches used in processing or submitted for withdrawal. Actual data were available only for 1995/96 but were estimated for previous years as a function of the growth rate of EU domestic GDP.

*Inputs Assistance (IA).* Fertilizer, insurance, and interest subsidies are other examples of non-commodity specific Aggregate Measures of Support (AMS) and are also listed with domestic support measures provided by the WTO. Like the data on general expenditures, these data were pro-rated and extrapolated to previous years.

*Price Intervention (PI).* Base and bound tariff rates for processed peaches in the EU can be found in “Chapter 20: Preparation of Fruits, Nuts, or Other Parts of Plants”, of *Schedule LXXX –European Communities in WTO tariff schedules on Agricultural Products*.

*Value of Abuse of Withdrawal.* For the grower, the value of potential withdrawal abuse was calculated as the quantity of potential withdrawal abuse, as calculated in table 6, multiplied by the average withdrawal subsidy. For the processor, two estimates of the added benefit to the processor of the grower's abuse of the withdrawal system were used. One estimate is simply the same as the value of the benefit of the withdrawal abuse to the grower, i.e., the processors extract economic rents from the growers equivalent to the value of the benefit of withdrawal abuse by growers. The other assumes that the economic rents extracted from growers is equivalent to half the value of the benefit of withdrawal abuse by growers. Accounting for withdrawal abuse in the PSE calculation actually lowers the grower PSE. Since the actual EU budget data for withdrawal expenditures, as included in the original grower PSE estimate, includes withdrawal payments to which the growers were not legally entitled, removing these payments lowers the amount of government support to Greek peach growers if no abuse had taken place. On the other hand, the inclusion of an additional subsidy, based on the level of abuse, will raise the PSE for the processor. The added subsidy to the processor, in the form of a price paid to the grower which is lower than the MGP, lowers the amount of the tax (as represented by payment of the full MGP) which in turn raises the amount of total market price support provided to the processor. Details of the Greek PSE calculation, assuming the calculated levels of abuse of the withdrawal system, are found in Appendix Table I-2.

**APPENDIX TABLE I-1**
**Producer Subsidy Equivalents (PSE) for Peaches Used for Processing or Withdrawal**
**European Union-15, 1989-1995**

EU PSE (Grower) (1,000 ECU)	1989	1990	1991	1992	1993	1994	1995
Production Aid/1	60450	56390	73600	72840	40510		
Withdrawal (CWC) Program/2	105400	87910	76980	160660	131140		
	118740	130500					
<b>Total (Market Price Support)</b>	165850	144300	150580	233500	171650	165740	179900
Promotion Measures /3	0	0	0	118	340	451	0
Tree-Pull (Grubbing-Up) Program /3	0	0	0	0	0	0	0
<b>Total (Marketing Assistance)</b>	0	0	0	118	340	451	0
General expenditures /4	1780	1841	1858	1850	1903	1951	1977
<b>Total (Infrastructure Support)</b>	1780	1841	1858	1850	1903	1951	1977
Insurance, Fertilizer, Interest Subsidies /4	214	221	223	222	228	234	237
<b>Total (Input Assistance)</b>	214	221	223	222	228	234	237
<b>Total Value of Government Support</b>	167844	146362	152662	235690	174121	168376	182114
<b>Value of production</b>	229693.67	192971	204782	302579	225142	233570	246384
<b>PSE (grower)</b>	73.07%	75.85%	74.55%	77.89%	77.34%	72.09%	73.91%
EU PSE (Processor) (1,000 ECU)	1989	1990	1991	1992	1993	1994	1995
Processing Aid (subsidy) /1	60450	56390	73600	72840	40510	47000	49400
MGP (tax) /1	-60450	-56390	-73600	-72840	-40510	-47000	-49400
<b>Total (Market Price Support)</b>	0	0	0	0	0	0	0
Import Tariffs /5	53011	45885	62696	80274	51865	59974	60967
<b>Total (Price Intervention)</b>	53011	45885	62696	80274	51865	59974	60967
General expenditures /3	8027	8300	8380	8342	8580	8796	8913
<b>Total (Infrastructure Support)</b>	8027	8300	8380	8342	8580	8796	8913
Insurance & Interest Subsidies/3	752	777	785	781	803	824	835
<b>Total (Input Assistance)</b>	752	777	785	781	803	824	835
<b>Total Value of Government Support</b>	61790	54963	71861	89398	61249	69593	70715
<b>Value of Production</b>	279006	241500	329978	422496	272976	315650	320880
<b>PSE (processor)</b>	22.15%	22.76%	21.78%	21.16%	22.44%	22.05%	22.04%

/1 Agricultural Situation in the EU, 1989-1995

/2 USDA-FAS, as submitted by the EU in response to a request by the G-6 countries

/3 General Budget of the EC, 1989-1995

/4 WTO Committee on Agriculture, Domestic Support Measures

/5 WTO Tariff Schedules for the EC, Chapter 20

APPENDIX TABLE I-2

Producer Subsidy Equivalents (PSE) for Peaches Used for Processing or Withdrawal  
Greece, 1989-1995

Greek PSE (Grower) (1,000 ECU)

	1989	1990	1991	1992	1993	1994	1995
Production Aid/1	29688	31145	36654	30693	19578	26908	32544
Withdrawal (CWC) Program/2	48420	61232	57444	107336	86800	93200	107200
Value of Abuse of Withdrawal	16500	6000	20900	26100	13200	17300	13900
<b>Total (Market Price Support)</b>	61608.4392	86376.962	73197.6422	111929.0904	93178.2698	102808.0084	125844.2921
Promotion Measures /3	0.0	0.0	0.0	73.5	251.4	335.2	0.0
Tree-Pull (Grubbing-Up) Program/3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total (Marketing Assistance)</b>	0.0	0.0	0.0	73.5	251.4	335.2	0.0
General expenditures /4	889.2	1184.7	1200.8	1157.4	1407.5	1449.2	1351.6
<b>Total (Infrastructure Support)</b>	889.2	1184.7	1200.8	1157.4	1407.5	1449.2	1351.6
Insurance, Fertilizer, Interest Subsidies/4	106.8	142.2	144.2	138.9	169.0	174.0	162.3
<b>Total (Input Assistance)</b>	106.8	142.2	144.2	138.9	169.0	174.0	162.3
<b>Total Value of Government Support</b>	62604	87704	74543	113299	95006	104766	127358
<b>Value of production</b>	112026	118759	129369	189689	142827	168747	182986
<b>PSE (Grower)</b>	55.9%	73.9%	57.6%	59.7%	66.5%	62.1%	69.6%

Greek PSE (Processor) (1,000 ECU)

	1989	1989	1990	1990	1991	1991	1992	1992	1993	1993	1994	1994	1995	1995
	Scenario 1	Scenario 2	Scenario 1	Scenario 2	Scenario 1	Scenario 2	Scenario 1	Scenario 2	Scenario 1	Scenario 2	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Processing Aid (subsidy) /1	29688	29688	31145	31145	36654	36654	30693	30693	19578	19578	26908	26908	32544	32544
MGP (tax) /1	-29688	-29688	-31145	-31145	-36654	-36654	-30693	-30693	-19578	-19578	-26908	-26908	-32544	-32544
Value of Abuse of Withdrawal	16500	8250	6000	3000	20900	10450	26100	13050	13200	6600	17300	8650	13900	6950
<b>Total (Market Price Support)</b>	16500	8250	6000	3000	20900	10450	26100	13050	13200	6600	17300	8650	13900	6950
Import Tariffs /5	26479.4	26479.4	29532.2	29532.2	40509.3	40509.3	50219.9	50219.9	38365.9	38365.9	44555.7	44555.7	41689.2	41689.2
<b>Total (Price Intervention)</b>	26479.4	26479.4	29532.2	29532.2	40509.3	40509.3	50219.9	50219.9	38365.9	38365.9	44555.7	44555.7	41689.2	41689.2
General expenditures /3	4010	4009.8	5342.3	5342.3	5415	5414.6	5219	5219.0	6347	6346.9	6535	6535.0	6095	6094.9
<b>Total (Infrastructure Support)</b>	4009.8	4009.8	5342.3	5342.3	5414.6	5414.6	5219.0	5219.0	6346.9	6346.9	6535.0	6535.0	6094.9	6094.9
Insurance & Interest Subsidies/3	375.4	375.4	500.2	500.2	507.0	507.0	488.7	488.7	594.3	594.3	611.9	611.9	570.7	570.7
<b>Total (Input Assistance)</b>	375.4	375.4	500.2	500.2	507.0	507.0	488.7	488.7	594.3	594.3	611.9	611.9	570.7	570.7
<b>Total Value of Government Support</b>	47364.6	47364.6	41374.7	41374.7	67330.9	67330.9	82027.7	82027.7	58507.0	58507.0	69002.6	69002.6	62254.8	62254.8
<b>Value of Production</b>	142768.08	142768.1	132237	132237.0	185125.82	185125.8	237445.36	237445.4	162527.88	162527.9	200582.2	200582.2	210375.2	210375.2
<b>PSE (Processor)</b>	33.2%	27.4%	31.3%	29.0%	36.4%	30.7%	34.5%	29.0%	36.0%	31.9%	34.4%	30.1%	29.6%	26.3%

Scenario 1 assumes full (100%) transmission of the value of abuse from grower to processor.

Scenario 2 assumes transmission of half (50%) of the value of abuse from grower to processor.

/1 Agricultural Situation in the EU, 1989-1995

/2 USDA-FAS, as submitted by the EU in response to a request by the G-6 countries.

/3 General Budget of the EC, 1989-1995

/4 WTO Committee on Agriculture, Domestic Support Measures

/5 WTO Tariff Schedules for the EC, Chapter 20



## Notes on Sources and Methodology for Calculation of U.S. PSE

The U.S. Producer Subsidy Equivalent (PSE) for canned peaches is calculated from data collected for the State of California, which represents 98 percent of total peach pack. PSEs were made at both the fresh Clingstone peach level and the canner f.o.b. level (Appendix Table I-3).

*Production and price data.* Annual ERS cash receipts and production quantity data are used for fresh Clingstone peaches, from which average producer prices were calculated. Data for peach pack (canned production on net weight basis) are from the Foreign Agricultural Service (FAS) PS&D database. Data for f.o.b. canner prices are from the California Cling Peach Advisory Board for calendar years, which are converted to a marketing year basis using simple averages.

*Market Price Support (MPS) component.* OECD uses tariffs as one acceptable measure of market price support (the other is to use an external reference price plus appropriate insurance and freight costs). The U.S. fresh peach tariff (HS code 080930) was zero percent for 1992-1997, while canned peach tariffs (HS code 200870) were between 19-20 percent for the same period. This translates to PSE components of zero and 16 percent, respectively.

*Crop insurance for cling peach growers: net indemnities (IA).* Cling peach growers benefit from Federal crop insurance net indemnities. The net indemnity of producers to the Federal Government is defined as their gross indemnity plus subsidy minus total premium. Data for California cling peaches are from the USDA Risk Management Agency and the Federal Crop Insurance Corporation (*Crop Year Statistics: Nationwide Summary By Crop*).

*Irrigation subsidies to cling peach growers (IA).* The Reclamation Projects in the 17 Western States subsidize water use in California and other Western States in two ways: (1) it subsidizes the interest rate on loans to irrigators ("contractors"), and (2) it prices its projects based on the contractor's ability to pay rather than on total cost. In 1988, the Bureau of Reclamation (BR) estimated the average subsidy per acre on Central Valley Project lands in California for 1986 at \$60 per acre. The BR report defines "irrigation subsidy" as "the difference between the annual Federal cost of constructing, operating, and maintaining the irrigation portion of a project, including interest at a Treasury rate on the capital investment, and the revenues received by the Federal Government toward those costs." The subsidy to cling peaches was calculated as the share of cling peach production value to total peach value in California, multiplied by the number of full and supplemental acreage to all California peaches under the Reclamation program, multiplied by \$60 per acre. Acreage figures come from Bureau of Reclamation's *Summary Statistics: Water, Land, and Related Data* for years 1989, 1991, and 1992. The average of the 1989, 1991, and 1992 PSEs of 0.20% is used for years 1993-97, while the 1992 PSE calculation of 0.18% is used for that year. This estimate was roughly comparable to an alternative

**Appendix Table I-3**  
**Producer Subsidy Equivalents (PSE) for Cling Peaches**  
**United States, 1992-1997 1/**

U.S. PSE (Grower)		1992	1993	1994	1995	1996	1997
CY							
		<i>1,000 USD</i>					
	<i>Price intervention</i>	0	0	0	0	0	0
(1)	Total (Market Price Support)	0	0	0	0	0	0
	<i>Crop insurance net benefits</i>	-185	-167	-39	751	-109	49
	<i>Irrigation subsidies</i>	73	75	65	58	76	95
(2)	Total (Inputs Assistance)	-112	-92	26	809	-33	144
	<i>Federal and state government general services</i>	8892	8172	6937	5955	7505	7338
(3)	Total (Infrastructure Support)	8892	8172	6937	5955	7505	7338
(4) = (1)+(2)+(3)	Total Value of Government Support	8780	8080	6963	6764	7472	7481
(5)	Value of Production	120636	113033	97470	87847	114510	143000
= (4) / (5)	<b>PSE (Grower)</b>	<b>7.3%</b>	<b>7.1%</b>	<b>7.1%</b>	<b>7.7%</b>	<b>6.5%</b>	<b>5.2%</b>
U.S. PSE (Processor)		1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
MY (June-May)							
		<i>1,000 USD</i>					
	<i>Price intervention</i>	60587	66407	56418	58676	44263	59714
(1)	Total (Market Price Support)	60587	66407	56418	58676	44263	59714
	<i>Market Access Program (MAP) allocations (FY)</i>	2350	1620	1090	780	630	727
(2)	Total (Marketing Assistance)	2350	1620	1090	780	630	727
(3) = (1)+(2)	Total Value of Government Support	62937	68027	57508	59456	44893	60441
(4)	Value of Production	363522	398440	345742	367499	271250	374000
= (3) / (4)	<b>PSE (Processor)</b>	<b>17.3%</b>	<b>17.1%</b>	<b>16.6%</b>	<b>16.2%</b>	<b>16.6%</b>	<b>16.2%</b>

1/ Calculations are based on California production, which represents 98 percent of the canned peach pack.

**Sources:**  
Bureau of Reclamation, Department of Interior. California Cling Peach Advisory Board. ERS / RED / FSB. Federal Crop Insurance Corporation, Crop Year Statistics, Nationwide Summary By Crop. Tennessee Valley Authority. UNCTAD TRAINS databas. USDA Extension Service. USDA / AMS / Office of Transportation. USDA / Farmers Home Administration. USDA / FAS. USDA / FAS PS&D database. USDA / Natural Resource and Conservation Service. USDA / Office of International Cooperation and Development. USDA / Risk Management Agency.

calculation, based on the share of cling peach acreage to total Program acreage across all 17 Western States, and then multiplied by total Federal program outlays. This estimate should be viewed as an upper-bound estimate of irrigation subsidy to cling peach production. More than 99 percent (only 78 of 10505 acres in 1992) of peach acres benefiting from the irrigation program were under “supplemental” irrigation. Per-acre subsidies for peaches are therefore likely below the \$60 average.

*Export marketing assistance (MA).* There are no California programs that subsidize peach exports. U.S. Government Market Access Program (MAP) allocations have been made to the California Cling Peach Growers Advisory Board in support of developing canned peach markets abroad. Figures used are allocations. Data are from FAS.

*General government services (FS, or infrastructure support).* OECD methodology requires allocating a share of appropriate non-commodity specific government services to the farmgate (fresh) level, based on the value of a commodity's production as a share of the value of total farmgate production. First, combined estimates were reached of (1) Federal and (2) California State general government services that benefited California agriculture in years 1992-97.

1. Federal general services benefiting California agriculture. Three different ratios were used to calculate the appropriate amount of individual Federal Government general services that benefited California's agriculture:

California total farmgate cash receipts as a percentage of total U.S. farmgate cash receipts: this ratio was used to estimate benefit to California of Federal expenditures from USDA and other Federal agencies on research, advisory services, processing and marketing assistance, pest and disease control, as well as tax expenditures;

- California crop cash receipts as a percentage of total U.S. crop receipts: this ratio was used to estimate the benefit to California of Federal land improvement expenditures. The crop receipts ratio was used as such programs primarily involve field crops;
- The value of California debt as a percentage of total U.S. debt under the Farmer's Home Administration (calculated for 1992-97 based on 1995 data): this ratio was used to estimate the benefit to California of FmHA credit assistance expenditures. FmHA provides loans for production inputs (“operating loans”), real estate, emergencies and conservation programs.

2. California State general services for agriculture. Data for California State expenditures on agriculture were obtained from Bureau of the Census for years 1996 and 1997, calculated as a percentage of expenditures in all 50 U.S. States; California State expenditures for 1992-1995 were estimated by extrapolation, using data on expenditures in all 50 U.S. States for those years.

Items (1) and (2) above can be combined to arrive at an estimate of general government services benefiting California farmgate production. To calculate the PSE component for fresh (farmgate level) cling peaches, this figure is simply multiplied by the ratio of cling peach cash receipts to total California cash receipts.

## **APPENDIX II. STATISTICAL APPENDIX: U.S. CANNED PEACH INDUSTRY**

Appendix Table II-1: U.S. cling peach grower prices, canner f.o.b. prices, and import prices

Appendix Table II-2: Analysis of Factors Influencing U.S. Import Prices of Canned peaches, 1983-1997

Appendix Table II-3: U.S. Canned Peach Supply and Utilization, 1975/76-97/98

Appendix Table 11-1. U.S. cling peach grower prices, canner f.o.b. prices, and import prices

Season	Grower price/ton farm weight 1/	Grower f.o.b. price/case (24 # 2.5 cans) 2/	Canner f.o.b. price/case (6 #10 cans) 3/	U.S. imports price/mt 4/	Greek landed price/mt (cans less than 1.4 kilograms) 5/	Greek landed price/mt (cans greater than 1.4 kilograms) 5/	Consumer price index for processed fruit 6/
1975/76	128.50	9.25					40
1976/77	115.00	9.60					40
1977/78	115.00	9.55					42
1978/79	135.00	11.15					46
1979/80	150.00	12.10					52
1980/81	155.00	13.00		516.63			55
1981/82	180.00	13.92	12.50	427.86			62
1982/83	172.00	14.23	12.73	401.26			65
1983/84	148.00	16.20	15.66	612.18			66
1984/85	183.00	17.62	17.40	613.00			71
1985/86	188.50	17.65	16.08	556.27			74
1986/87	167.00	17.96	15.45	522.34			71
1987/88	193.00	18.31	16.71	647.78			74
1988/89	212.75	19.16	17.83	647.87			82
1989/90	218.00	19.00	17.65	643.47	909.98	838.96	85
1990/91	218.00	18.79	16.45	583.85	817.36	760.62	92
1991/92	224.00	20.29	18.33	629.29	824.65	828.57	89
1992/93	220.00	20.28	18.80	689.24	1036.82	819.66	93
1993/94	224.00	19.24	18.89	562.18	803.00	763.36	89
1994/95	185.00	19.23	18.60	581.15	810.33	742.95	89
1995/96	213.00	19.10	19.73	682.73	932.99	861.12	92
1996/97	200.00	20.36	22.40	667.26	765.97	868.54	98
1997/98	218.00	20.09	20.53	679.06	741.04	848.62	100

1/ Data on grower price per ton is from the California Canning Peach Association (1 ton farm weight = 1.2 tons product weight).

2/ California Canning Peach Association data for 1975-80. Other data from the Food Institute.

3/ Food Institute data.

4/ Customs value. Data from FAS.

5/ Data from U.S. Department of Commerce. Landed price is customs value plus tariff plus shipping and insurance.

6/ Price index from ERS Fruit and Tree Nuts Situation and Outlook Report Yearbook issue (with 1997 equal to 100. The index is on a calendar year basis.

Source: California Canning Peach Association, U.S. Department of Commerce, ERS, FAS, and the Food Institute

**Appendix Table II-2: Regression-based data**

Year	Pp	Ic	Pm	Ql	Ex	Wn	Iw	Ht	Ws	Pn	Pa
1983	612.18	0.659	928.56	850,689	87.9710	13,385,835	0.197	460,300	147.69	11,837	60,115
1984	613.00	0.707	867.06	734,720	112.8126	27,479,236	0.239	479,275	239.83	11,932	49,912
1985	556.27	0.736	755.92	1,031,842	138.5038	30,166,081	0.289	579,080	180.45	12,752	44,172
1986	522.34	0.714	731.17	975,813	139.9644	33,380,486	0.336	524,075	189.77	11,063	32,960
1987	647.78	0.743	871.52	852,891	135.4214	36,989,334	0.369	557,325	179.99	18,385	49,860
1988	647.87	0.819	790.84	934,536	141.9471	42,863,760	0.406	606,230	174.34	21,382	52,724
1989	643.47	0.846	760.51	981,057	162.4737	31,338,951	0.461	621,510	109.50	17,715	38,468
1990	583.85	0.920	634.60	994,976	158.5335	48,420,313	0.534	616,410	147.21	23,738	44,485
1991	629.29	0.886	710.45	928,618	182.3818	61,232,028	0.623	763,920	128.72	29,102	46,733
1992	689.24	0.925	744.80	1,078,307	190.8826	57,443,633	0.694	722,774	114.57	23,144	33,363
1993	562.18	0.888	632.78	1,173,096	229.4540	107,336,398	0.776	986,869	140.18	21,642	27,893
1994	581.15	0.894	649.69	1,092,915	242.5131	86,800,000	0.844	961,000	107.06	24,556	29,107
1995	682.73	0.922	740.45	1,153,615	231.7868	93,200,000	0.909	1,084,000	94.56	26,483	29,125
1996	667.26	0.976	683.80	1,175,864	240.8206	107,200,000	0.965	697,000	159.33	27,012	27,983
1997	679.06	1.000	679.06	1,113,839	273.1131	23,200,000	1.000	813,000	28.54	25,359	25,359

Pp =U.S. *cif* dollar import price per metric ton of canned peaches, weighted by the two tariff categories of retail and commercial sized cans;

Ic =U.S. producer price-received index for processed fruit;

Pm = real U.S. import unit value of canned peaches, deflated by *Ic*;

Ql =metric tons of canned peaches produced on a crop-year basis in the world, lagged one year;

Ex =drachma-dollar exchange rate, calendar-year average;

Wn =Greek withdrawal expenditures expressed in *ecu* terms;

Ht =metric tons of harvested peaches in Greece;

Iw =Greek wholesale price index;

Ws =real Greek withdrawal subsidy expenditures per metric ton of harvested peaches, deflated by *Iw*;

Pn =Greek processor aid per metric ton of canned peaches, expressed in *drachmas*;

Pa =real Greek processor aid per metric ton of canned peaches, deflated by *Iw*

Appendix Table II-3: Canned peaches: Supply and utilization, 1975/76-97/98, product weight equivalent

	Production 1/	Imports	Beginning stocks	Total supply	Ending stocks	Exports 2/	Government purchases	Consumer purchases	Total consumption	Per capita consumption
										pounds
				-----million pounds-----						
1975/76 3/	1,117.6	0.2	189.7	1,307.5	272.2	93.4	47.4	894.4	941.8	4.34
1976/77	991.1	0.0	272.2	1,263.3	229.7	114.4	66.4	852.7	919.2	4.19
1977/78	1,199.2	0.1	229.7	1,429.0	267.4	160.1	67.2	934.4	1,001.6	4.52
1978/79	864.5	0.1	267.4	1,132.0	144.9	143.7	62.3	781.1	843.4	3.77
1979/80	1,046.3	0.5	144.9	1,191.7	194.2	135.3	42.4	819.8	862.1	3.81
1980/81	1,087.1	0.6	194.2	1,281.9	288.8	129.6	63.8	799.7	863.5	3.77
1981/82	898.6	0.4	288.8	1,187.8	342.1	87.9	88.3	669.5	757.8	3.28
1982/83	776.3	0.8	342.1	1,119.2	242.4	79.3	70.7	726.8	797.5	3.42
1983/84	460.5	52.5	242.4	755.4	49.6	35.0	41.2	629.6	670.8	2.85
1984/85	812.9	55.8	49.6	918.3	182.3	25.2	35.7	675.1	710.8	2.99
1985/86	754.8	63.5	182.3	1,000.6	245.7	31.1	33.5	690.3	723.8	3.02
1986/87	629.2	38.2	245.7	913.1	145.0	35.2	36.5	696.4	732.9	3.03
1987/88	645.1	56.0	145.0	846.1	58.8	41.1	38.5	707.7	746.2	3.06
1988/89	750.9	99.3	58.8	909.0	101.5	38.7	16.6	752.2	768.8	3.12
1989/90	725.8	85.0	101.5	912.3	117.5	31.7	20.3	742.9	763.2	3.07
1990/91	777.8	31.1	117.5	926.3	100.1	41.3	35.0	750.0	785.0	3.12
1991/92	735.5	75.8	100.1	911.3	65.3	43.0	21.2	781.9	803.1	3.16
1992/93	866.6	48.3	65.3	980.2	139.2	48.2	46.2	746.6	792.8	3.09
1993/94	786.4	46.8	139.2	972.4	165.3	46.0	65.9	695.2	761.1	2.93
1994/95	852.6	45.7	165.3	1,063.6	243.6	60.1	52.0	707.9	759.9	2.90
1995/96	632.5	31.1	243.6	907.2	110.5	68.5	24.0	704.2	728.2	2.75
1996/97	784.7	61.9	110.5	957.1	165.3	51.6	23.8	716.5	740.2	2.77
1997/98	800.8	48.5	165.3	1,014.6	204.9	66.7	29.9	713.1	743.1	2.76

1/ Canned peach production used only in canned peaches, not fruit cocktail.

2/ For 1992/93-1997/98, including exports of fresh cling peaches (in product weight equivalent) to Mexico which are canned there.

3/ Season begins June 1 of the first year shown.

Sources: ERS/ Fruit and Tree Nuts Situation and Outlook Report Yearbook, California Canning Peach Association

### **APPENDIX III. THIRD-COUNTRY EXPORTERS**

Besides the United States and the European Union (predominantly Greece, Italy and Spain) there are four other major traditional producers of canned peaches: Australia, Argentina, Chile and South Africa. All of these are Southern Hemisphere producers and supply the world market in alternate seasons from the United States and Greece. Together, these four countries currently account for about 20 percent of world production and 20 percent of world exports.

During the 1993-97 period, average aggregate production by these Southern Hemisphere countries reached 218,000 tons, an increase of 29 percent from the 1981-1993 thirteen year average of 169,000. Average production for Argentina, Chile, and South Africa increased by 14,000, 18,000, and 19,000 tons, respectively. Average Australian production declined by 2,000 tons.

Average aggregate exports for these countries during this same period of time reached 112,000 tons increasing 18 percent from the 1981-93 average of 94,000 tons. Average exports from both Chile and South Africa increased by 18,000 tons while Australian exports declined by nearly 50 percent from 18,000 to 9,000 tons. Historically, Argentine exports fluctuate greatly from year to year, but over the 1992-97 period, exports have been remarkably consistent averaging 5,500 tons.

#### **South Africa**

Canned peaches are the largest sector of the South African canned fruit industry, accounting for about 45 percent of all canned fruit production. Over the past 30 years, South Africa's exports averaged about 85 percent of its production. Thus, production declines when export demand falls off. South Africa's exports declined in large part due to changed circumstances in the European market. Europe was South Africa's largest market and its loss was due to the increase of Greek production, the loss of Commonwealth preference following the United Kingdom's accession to the EU in 1972, and eventual elimination from the market due to economic sanctions imposed in the mid-1980's. As a consequence of these events, South Africa moved from being the world's largest to second largest exporter and from the world's second largest to the third largest producer of canned peaches. There are six canners in South Africa operating nine factories. Most of the export market is served by the two largest canners, Langenburg and Del Monte.

In the last part of the 1960s, South Africa was second to the United States in both production and export of canned peaches. However, beginning in 1976, European production consistently overshadowed South African production and by 1980, Greek production alone out-produced South Africa. During the last few years, the removal of sanctions and a strong devaluation of the rand has made the South African product more price competitive in world markets and buoyed production.

In 1997, South Africa sent 51 percent of its canned peach export to Europe, 4 percent to African countries, 29 percent to the Far East, 8 percent to the United States and 8 percent to other countries.



South Africa formerly assisted exports through tax incentives which were later incorporated into the General Export Incentive Scheme (GEIS). However, in accordance with the WTO agreement, South Africa phased out this program by the end of 1997. In 1996, South African Agricultural Marketing was fully liberalized under the new Agricultural Marketing Act. The deciduous fruit industry restructured its activities and the single marketing channel system of the Deciduous Fruit Board was replaced by the Deciduous Fruit Foundation. The Board of Fruit Canners activities were replaced in September 1997 by the Apricot, Pear and Peach Association. This Association is responsible for market development, market information, research, extension, and plant improvement. Processors are organized into the Canners Association which remains unchanged. The EU and South Africa are negotiating a free trade agreement. However, it is not expected that any concessions will be made by the EU on canned fruits.

## **Australia**

In the late 1960s Australia was the third largest producer of canned peaches in the world, following the United States and South Africa, and the second largest exporter following South Africa. Since then production has fallen to the point that Australia is the second smallest producer, ahead of France and equal to Italy, and the third smallest exporter ahead of France and Argentina. Production which averaged over 90,000 tons during the first part of the 1970s, now averages around 33,000 tons, and exports, which averaged over 50,000 tons, now average less than 10,000 tons. Canned peaches account for about 30 percent of Australia's canned fruit production, which is valued at A\$149 million. There are three canners operating in Australia, but two, Ardmonao and SPC, account for about 85 percent of the market.

Australia's canned peach production over the 1994-97 period was fairly constant at 34,000 tons, fluctuating only 1,200 tons between 1995 and 1998. This consistency is probably in response to renewed domestic demand for canned fruit combined with steady export demand (albeit, at historically low levels). Since 1993, domestic consumption has steadily increased and is forecast at 27,000 tons for the 1997/98 marketing year.

Australian exports continue to slowly trend downward from the last resurgence experienced in marketing years 1985/86 through 1987/88 when shipments averaged 24,000 tons. Exports in 1996/97 totaled 8,586 tons, and for 1997/98 are forecast at 10,000 tons. Tough competition from Greece, South Africa, and the United States in important markets such as Japan and Canada continue to plague Australia's efforts to reestablish a vibrant export market.

Australia exports almost 40 percent of its canned peaches to Asian markets. Canada, however, is the largest single market, receiving 30 percent of Australian exports. Japan accounts for nearly 22 percent and New Zealand for 15 percent of total exports. Other important markets are Taiwan, Singapore, the United Kingdom, and the United Arab Emirates.

Most Australian canned peach imports are destined for the lower-priced generic (non-branded) end of the market. However, the realization by Australian canners that market share was being eroded by lower cost imports led to the introduction of some locally packed generic lines. The establishment of local generic lines, the recovery of the Australian economy, the development of

new products, such as the snack pack, and buyer resistance to imported products have all contributed to maintaining domestic consumption.

In January 1992, Australia's Anti-dumping Authority (which is part of the Australian Government) imposed countervailing duties on imports of canned peaches from Spain and Greece, and anti-dumping duties on imports of canned peaches from Greece and China. An anti-dumping duty was also imposed on pears imported from China. The Authority concluded that imports of canned peaches from Spain and Greece had been sold at prices below the normal value in their respective markets. Countervailing duties of A\$4.38 and A\$4.54 per basic carton (24 kg gross) were imposed on shipments of canned peaches from Greece and Spain respectively. Anti-dumping duties applied are not available due to commercial confidentiality. The antidumping duties were originally imposed for an initial 3-year period, but subsequently extended to 5 years. Another review was concluded in 1996 which found that the only duty which should remain is the countervailing duty applying to canned peaches exported from Greece. This duty was calculated at A\$2.81 and will apply for a further 5 years from February 19, 1997. Since Australia apparently found no evidence that Greece was using the EU Sugar Refund program, the duty was reduced from the original figure as the sugar rebate component of the duty was removed.

## **Chile**

Canned peaches account for over 85 percent of Chile's production of canned fruit. In the late 1960s, production was equal to that of Greece, totaling around 10,000 to 11,000 tons. However, 5 percent of Chile's production was exported compared with 80 percent of Greek production. Production in the early 1970s declined in response to the Socialist economic policies under the Allende regime. After the fall of the Allende Government, production recovered and eventually exceeded its 1970 level. A large part of the expanding production went to the export market. Replanting of aging trees with improved, higher yielding varieties continues to take place and is expected to increase production substantially over the next 3-5 years. Currently, exports are more than three times as large as they were between 1977 and 1983, when shipments averaged around 13,000 tons. Exports now account for about 70 to 75 percent of production. Canned peaches are produced for the more lucrative export market because domestic demand is stagnant due to increased demand for fresh fruit. There are 7 main canneries of which 5 account for over 90 percent of production.

Over the 1990-97 period, Chile built a strong export trade with South and Central American countries. In fact, these countries and Mexico comprise a rapidly growing market for Chilean canned peaches. Since 1991, total exports have grown over 300 percent, and exports to Latin American countries grew by nearly 700 percent. In contrast, exports to the United States and Canada, which accounted for well over 60 percent of the shipments in 1989 and 1990, accounted for about 3 percent in 1997. However, Chile's share of Mexico's canned peach imports grew from zero to over 50 percent over the same period. Exports to Japan, which accounted for 37 percent of total exports in 1991, accounted for about 8 percent in 1997.

Chilean processors have benefited from two export rebate programs in the past. Rebates were available to exporters on import duties paid on sugar and tin plate used as an input in exported

canned peaches. The rebates may have amounted to a subsidy of \$.50 per case. Around 1990, Chile offered export incentives for shipment of non-traditional export commodities such as canned fruit. An exporter could receive a payment of up to 10 percent of the f.o.b. (free-on-board) value until national exports exceeded US\$8.0 million per year. Beyond that level, the payment declined to 5 percent of the f.o.b. export value until the total national export value totaled US\$12.1 million. The payment was eliminated for exports exceeding that limit. Chile's export value of canned peaches totaled US\$14 million in 1989, and thus canned peaches did not receive any export incentive payment after that date.

## **Argentina**

Canned peaches account for 80 percent of Argentina's canned fruit production. There are about 20 canneries packing peaches having a total capacity of 100,000 tons. About 65 percent of these operations are classified as either small or medium sized enterprises. Production is increasing, primarily for the domestic market. Consumers tend to be cost conscious and the price for the best brand of canned peaches is half that of fresh fruit, including pears and apples. In 1991, Argentina reduced its tariff rates and liberalized many of its other import restrictions. Since then, Argentina has become a net importer of canned peaches, with net imports averaging almost 8,000 tons. However, during the last few years canned peach trade (imports and exports) has been more nearly balanced, as production doubled to meet demand. Since 1990, production has increased steadily and now totals 70,000 tons.

Argentine canned peach exports enjoy a 7.3-percent export rebate. Primary export markets are Brazil and Paraguay which account for about two thirds of Argentine shipments. Argentina is a member of a regional free-trade agreement (Mercosur). Imports from non-Mercosur countries are subject to a 20-percent duty while Mercosur countries incur a 3 percent duty. In 1996 the Ministry of Economy investigated complaints concerning EU subsidization and imposed a compensatory duty of 18.12 percent on shipments arriving from Italy, 12.5 percent on shipments from Spain, and 12.13 percent on shipments from Greece and other EU countries.